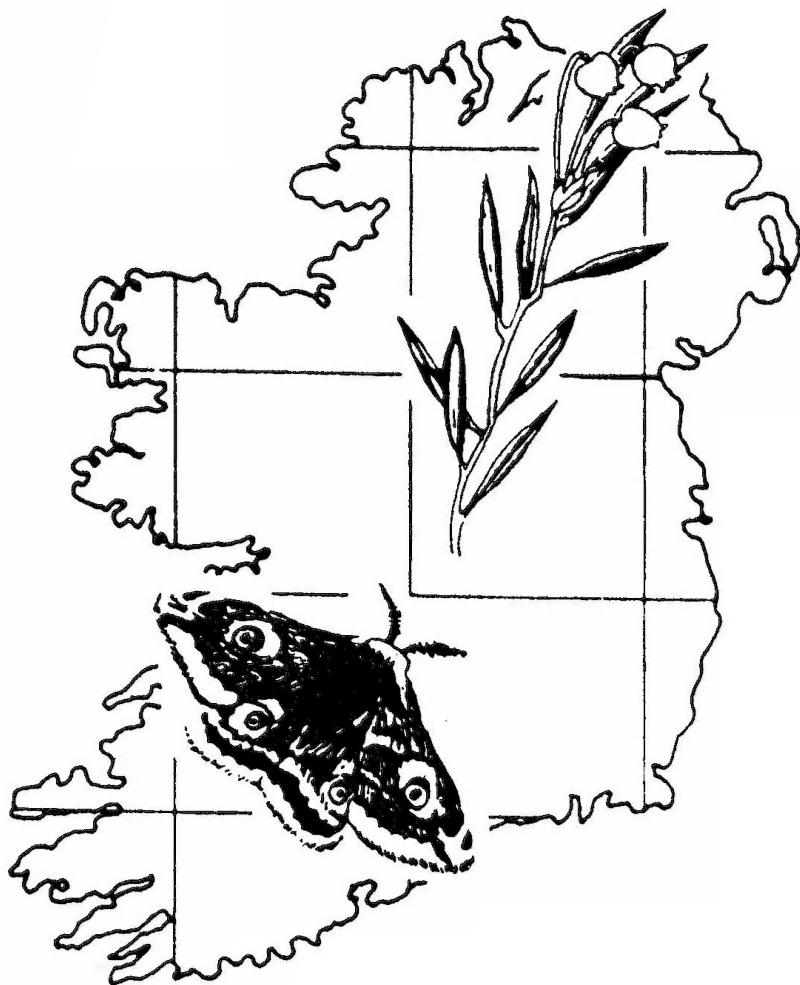


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Enquiries concerning the Bulletin (including the purchase of back issues) may be sent to The Irish Biogeographical Society c/o the Editor Dr J. P. O'Connor, National Museum of Ireland – Natural History, Dublin D02 F627, Ireland <joconnor@museum.ie> or to the Treasurer Mr John Walsh at <ampersandwalsh@gmail.com>.

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Number 40

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EDITORIAL

When the Irish Biogeographical Society was established in 1975, the founding members could not have foreseen that it would still be active over forty years later. From its inception, the Society has published an annual *Bulletin* and through its production has witnessed the extraordinary revolution that has occurred in printing technology and computerisation. With the present issue, the Society has now published 40 *Bulletins* and 19 books (11 in the *Occasional Publication* Series and 8 in the *Macro* Series). Another four books are in preparation. The Society has never had an insular outlook and has published important research undertaken outside Ireland. Altogether, its publications form an important data-base of information on the distribution and biology of both plants and animals on this island and elsewhere. A synopsis of the contents of the publications up to 2004 will be found in Occasional Publication **Number 8**. *A catalogue and index of the publications of the Irish Biogeographical Society* (1977-2004). In addition, a full up to date list of the *Bulletin* contents is available on the Society's website <www.irishbiogeographicalsociety.com> along with pdfs of some publications.

As the Society is a voluntary and not-for-profit body, all the above publications have been funded through subscriptions, sponsorship and sales. Over the years, the National Museum of Ireland in particular has provided essential support. To celebrate our fortieth *Bulletin*, some photographs of current and past committee members and our customary meeting place are given towards the end of this issue. *Bulletin Number 40* carries on with the tradition of the Society in publishing important distributional papers. Pascal Sweeney has contributed an excellent article on the aquatic oligochaetes. For a long time, this important group was neglected in Ireland so it is heartening that a hundred species have now been recorded. Declan Murray continues to be very active in chironomid research along with Paddy Ashe. Declan, as well as providing interesting accounts of discoveries in Counties Cork and Meath, is the senior author of a paper which corrects errors in the *Fauna Europea* data base where records from Northern Ireland and the Republic of Ireland have been misinterpreted. Martin Cawley has compiled a very useful indexed bibliography of the Irish pseudoscorpions while the editor and Mary O'Connor provide Irish caddisfly records which greatly increase the known distributions of many species. With Peter Buhl, the editor also has a review of the platygastriids of the island which is now known to be home to 139 species of these very small but attractive parasitic wasps. Myles Nolan continues his fascinating research on the Irish spiders.

On behalf of the Society, I would like to thank all our authors and referees over the last four decades. They have made a notable contribution to the success of the publications. Also a word of gratitude to our sponsors whose financial support has been so important to the Society and its members. Their generosity is greatly appreciated by all of us.

J. P. O'Connor, Editor, 19 October 2016

REVISED INSTRUCTIONS TO AUTHORS

1. Submitted manuscripts should follow the format of articles in *Bulletin* **Number 40** and other recent issues. The titles of journals should be given in full in the references. The references should be arranged alphabetically with, where relevant, Anon. appearing first.

2. Manuscripts may be submitted by e-mail to the Editor at <joconnor@museum.ie> or *via* our Treasurer Mr John Walsh at <ampersandwalsh@gmail.com>. Figures and photographs should be sent as jpegs. Complex tables should also be sent as jpegs and not in Excel. Remember that all figures and tables should be submitted in a type size which will remain legible after reduction to A5. Typed copy is still acceptable. It should be sent, on A4 paper, using double-spacing and 2.5cm (one inch) margins with the text and any figures on an accompanying compact disc, to the Editor, Dr J. P. O'Connor, Emeritus Entomologist, National Museum of Ireland – Natural History, Merrion Street, Dublin D02 F627, Ireland.

3. Word is preferred and Times New Roman 13pt should be used.

4. Records: please ensure that, when possible, the following information is incorporated in each record included in a manuscript:-

(a) latin name of organism.

(b) statement of the reference work used as the source of nomenclature employed in the text. The describer's name should be also given when a zoological species is first mentioned in the text.

(c) locality details including at least a four figure Irish grid reference (e.g. N3946), county or vice-county and some ecological data about the collection site, plus date of capture.

(d) collector's name and determiner's name (where different from the collector's name), and

(e) altitude data should be included where relevant.

5. Each year, the closing date for submissions will be the 15 October for that year's *Bulletin*. Mss received after that date will be considered for the following year's *Bulletin*. All papers will be refereed and any major changes referred to the author(s) for consideration.

THE CURRENT STATUS OF AQUATIC OLIGOCHAETES IN IRELAND

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Abstract

One hundred aquatic oligochaete species whose presence in Ireland has been confirmed are listed. An overview of the current knowledge regarding the occurrence and distribution of aquatic species of the Families Naididae (including species of the former Family Tubificidae), Pristinidae, Lumbriculidae, Lumbricidae and Phreodrilidae is given.

Key words: Oligochaetes, aquatic, Ireland, occurrence, distribution.

Introduction

Some major changes in the higher classification of the Phylum Annelida in recent years do not yet appear to have resulted in a final stabilized classification system. As the taxonomic name Oligochaeta can now be considered synonymous with Clitellata referring to a rank above the family group (Erséus *et al.*, 2008), the term ‘oligochaete’ is used here to refer to the species of oligochaetous annelids, excluding Polychaeta, leeches and leech-like worms. A change in classification at family level has resulted in the former Family Tubificidae being absorbed into the Family Naididae. As DNA data indicated that these two taxonomic groups should be treated as a single family, Erséus and Gustavsson (2002) proposed that the name Tubificidae be retained, because it was better known, even though Naididae is the older of the two names. However, the International Commission of Zoological Nomenclature (2007) ruled that there was not sufficient reason to justify reversal of procedure. Thus, the name Tubificidae is defunct. There is, however, a practical need to be able to use a term identifying the species of this former family, because of its use in biological water quality assessments. Erséus *et al.* (2008) suggest the term ‘tubificoid Naididae’, while Van Haaren and Soors (2013) simply use the vernacular term ‘tubificids’. As further debates are resolved, it is to be expected that some more re-organisation at family or sub-family level will take place. However, the purpose of the present paper is not to become involved in these debates on oligochaete phylogeny or taxonomy, but rather to give, where possible, an overview of the current knowledge regarding the status, occurrence and distribution of the aquatic oligochaete fauna of Ireland.

Since the publication of species inventories and distribution data for freshwater oligochaetes by Trodd *et al.* (2005), six species new to Ireland have been found (Schmelz *et al.*, 2015; Sweeney *et al.*, 2013; Sweeney and Caroni, 2016; Sweeney and Gallagher, 2013; Sweeney and

Sweeney, 2013, 2016). In addition, a considerable body of data on freshwater oligochaete species distribution has been amassed, derived mainly from a combination of results of river biological water quality assessments carried out by Sweeney Consultancy and lake monitoring programmes undertaken by the Environmental Protection Agency and by the Northern Ireland Environment Agency to meet the requirements of the EU Water Framework Directive (2000/60/EC).

Published data on the distribution of Irish estuarine and marine oligochaete species is less comprehensive, particularly around the northern half of the coast of Ireland. The oligochaete fauna of Munster estuaries was described by Sweeney (2005). Oliver and Healy (1998) recorded oligochaete species in a survey of coastal lagoons from Wexford to Donegal. Healy (1979a) described the marine littoral and brackish water oligochaete fauna of Wexford. Kennedy (1964) included records of marine species from Antrim, Dublin, West Cork and West Mayo. McGrath (1975) identified oligochaetes from the marine littoral in Dublin Bay and Inishmore Island, Co. Galway. Some additional data from recent estuarine surveys carried out by Sweeney Consultancy are also available.

This paper is based on over 2000 species records from over 500 sites, which have been submitted to the National Biodiversity Data Centre (NBDC). For inclusion in the NBDC database, determination of the accuracy of the original identification is necessary. This necessitates the ignoring of many records, both published and unpublished, particularly of the species where identification can be in any doubt. Specimens of thirty four freshwater species recorded by Trodd *et al.* (2005) and of five additional estuarine species (Sweeney, 2005) were deposited in the National Museum of Ireland – Natural History (NMINH), following verification by Tarmo Timm, Estonia, a co-author of a taxonomic key to freshwater oligochaetes of north-west Europe (Timm and Veldhuijzen van Zanten, 2002). All aquatic oligochaete specimens in the possession of the National Museum of Ireland – Natural History prior to 2005 were examined, as were some other available material on which earlier records were based. Specimens of species confirmed as new to Ireland since 2005 have also been deposited in NMINH.

Species Distribution and Occurrence

Family NAIDIDAE

Subfamily NAIDINAE

Oligochaetes of this subfamily are generally small and most are able to swim. While some are quite easy to identify to species level, others, particularly those of the genus *Nais*, can prove difficult.

***Chaetogaster cristallinus* Vejdovský, 1883**

A glass slide, labelled as *Chaetogaster cristallinus*, collected by Rowland Southern in 1908, at Powerscourt, Co. Wicklow, is in the possession of NMINH. This specimen is referred to in Southern (1909). However, the cover-slip and specimen are missing. There are no other confirmed records of this species in Ireland. It is considered that this species is sufficiently distinctive and that the recorder was sufficiently expert for the record to be accepted.

***Chaetogaster diaphanus* (Gruithuisen, 1828)**

Chaetogaster diaphanus, one of the few predators among Irish oligochaetes, is found in a variety of slow-flowing or still freshwater sites. It was first recorded by McGrath (1975) at two sites in Co. Galway and one in Co. Dublin. It is fairly common in the Killarney Lakes and has also been found in several other lakes and in the tidal freshwater sections of some rivers. A congener, *C. diastrophus* (Gruithuisen, 1828) was recorded by Southern (1909) in the River Dargle, Co. Wicklow, the River Annalee in Co. Cavan and a pond in the Phoenix Park, Co. Dublin, as well as from a stream on Clare Island, Co. Mayo (Southern, 1913). However, no specimen of *C. diastrophus* is lodged in NMINH. The facts that *C. diastrophus* is morphologically very similar to *C. diaphanus*, that Southern did not record any specimens of the latter species, which is fairly widely distributed, and as there have been no more recent published records of the former species in Ireland, suggests that the earlier records of *C. diastrophus* are possibly misidentifications of *C. diaphanus*.

***Chaetogaster limnaei* von Baer, 1827**

As *Chaetogaster limnaei* is commensal or parasitic on gastropods, attaching itself to the snails' body wall, under the shell, it is very easily overlooked and therefore, almost certainly, under-recorded. It was first recorded in Ireland by McCarthy (1974).

***Dero digitata* (Müller, 1773)**

Dero digitata is found mainly in still water locations throughout most of Ireland. It is quite tolerant of organic pollution.

***Dero obtusa* d'Udekem, 1855**

In 2011, *Dero obtusa* was recorded in abundance in Lough Ramor, Co. Cavan, where it had never previously been found, despite annual monitoring at the same location from 2002 to 2008 (Sweeney and Sweeney, 2014). It has not been recorded at any other location in Ireland. It could have been inadvertently introduced to Lough Ramor by anglers or other lake users. Alternatively, *D. obtusa* could just be a variation of *D. digitata*, as suggested by Milligan (1997).

***Nais alpina* Sperber, 1948**

Nais alpina is found in stony substrata of streams (Timm and Veldhuijzen van Zanten, 2002). A single specimen was collected in 1996 in Co. Wicklow.

***Nais barbata* Müller, 1773**

Nais barbata is quite common in littoral areas of the Killarney Lakes, Co. Kerry. The only other known Irish location at which this species has been found to date is the River Goul in Co. Kilkenny.

***Nais bretscheri* Michaelsen, 1899**

Nais bretscheri occurs in the Killarney Lakes, Co. Kerry, but has not been verified from any other Irish location.

***Nais christinae* Kasprzak, 1973**

Because the first description of *Nais christinae* was not until 1973, it was not included in the commonly used identification guide to aquatic oligochaetes by Brinkhurst (1971). A specimen, collected in 1978 in Lough Leane, Killarney, Co. Kerry, by the author and initially identified as *N. communis*, was corrected to *N. christinae* in 2002 by Tarmo Timm and deposited in NMNH. This species has subsequently been identified from Stoneyford Lough, Co. Fermanagh.

***Nais communis* Piguet, 1906**

Nais communis is a rare species in Ireland. It was first recorded on Clare Island, Co. Mayo, by Southern (1913). This record seems to have led to an erroneous statement in the Freshwater Biological Association identification guide to aquatic oligochaetes (Brinkhurst, 1971), that *N. communis* had been recorded in Co. Clare, which is the only mention in this guide to an Irish location for any of the five species of *Nais* with bifid dorsal crotchets. This, combined with the absence of *N. christinae* from the guide, led to incorrect identification of specimens as *N. communis* by several freshwater biologists, the author included, before more experience of this genus was acquired. O'Grady *et al.* (1979) recorded *N. communis* from Lough Leane, Killarney, Co. Kerry and Lough Sillan, Co. Cavan. The Killarney specimens were available for examination and were found to be *Dero digitata* with the hind end missing and therefore without the diagnostic posterior gills of the latter species. The only other confirmed record of *N. communis* in Ireland since the Clare Island record was a single specimen, collected in the River Barrow, Co. Carlow, in 2002.

***Nais elinguis* Müller, 1773**

Nais elinguis is common and widespread in rivers, lakes and the upper reaches of estuaries throughout Ireland. It can occur in abundance in organically enriched conditions.

***Nais pardalis* Piguet, 1906**

From the results of a survey of the rivers of Northern Ireland, Wright *et al.* (2000) recorded *Nais pardalis* as a species new to Ireland. A specimen of this species, in the possession of NMNH, was collected by the author in 1978 in Lough Leane, Killarney, Co. Kerry, where it is quite common on stony and sandy substrata in the littoral zone. It has subsequently been found in a few other river and lake littoral sites.

***Nais simplex* Piguet, 1906**

Nais simplex occurs throughout Ireland, mainly in lakes, but also occasionally in rivers, usually in low numbers.

***Nais variabilis* Piguet, 1906**

Most Irish records of *Nais variabilis* are from Co. Kerry, where it occurs in the Killarney lakes and in the upper parts of several estuaries. It has also been recorded from a stream in south Co. Dublin.

***Ophidonais serpentina* (Müller, 1773)**

Ophidonais serpentina is a very distinctive species that has been recorded throughout Ireland, mainly in lakes, but also occasionally in rivers.

***Paranais litoralis* (Müller, 1784)**

Paranais litoralis is found in saline waters around all surveyed parts of the Irish coast and can occur in great abundance in estuaries.

***Ripistes parasita* (Schmidt, 1847)**

The earliest known occurrence of *Ripistes parasita* in Ireland was in St John's Lake, Co. Leitrim in 2001 (Sweeney and Caroni, 2016). This location, as well as Lough Scur, Co. Leitrim, where *R. parasita* was subsequently recorded, are on the navigable Shannon-Erne Waterway, which could suggest that it was introduced in bilge water of second-hand boats imported from Britain or continental Europe. However, it has also been found in two Donegal lakes, which would be more difficult to explain by such human mediated introductions. It therefore seems more likely that *R. parasita* is a native species of quite limited distribution. It is a very distinctive species which is typically found in shallow, still or slow flowing waters and is usually associated with aquatic vegetation (Van Haaren and Soors, 2013).

***Slavina appendiculata* (d'Udekem, 1855)**

Because *Slavina appendiculata* is small and encrusted with foreign matter, it can easily be overlooked and is therefore probably under-recorded. It has been found at a few locations in Ireland, mostly associated with still water with peaty or detritus rich substrata.

***Specaria josinae* (Vejdovský, 1883)**

Specaria josinae can be difficult to distinguish from several species of the genus *Nais*. It has been found in littoral and sublittoral zones of several Irish lakes.

***Stylaria lacustris* (Linnaeus, 1767)**

Stylaria lacustris is common and very widely distributed in freshwaters and in slightly brackish waters throughout Ireland.

***Uncinais uncinata* (Ørsted, 1842)**

Van Haaren and Soors (2013) describe *Uncinais uncinata* as a sub-rheophilic species. Most Irish records are from lakes in the south and midlands, where it is mainly associated with sandy

substrata. *U. uncinata* has also been found at the freshwater end of estuaries.

***Vejdovskyella comata* (Vejdovský, 1883)**

Vejdovskyella comata is a small, but very distinctive oligochaete, which has been found at a few still water sites in different parts of Ireland.

Subfamily TUBIFICINAE

The twenty species of the subfamily Tubificinae known to occur in Ireland were included in the former family Tubificidae. Immature specimens of several species with hair chaetae, particularly *Tubifex tubifex*, *Ilyodrilus templetoni*, *Potamothrix hammoniensis*, *P. bavaricus* and *P. heuscheri* can be very difficult to separate. The same is true of immature specimens without hair chaetae belonging to the genus *Limnodrilus*.

***Aulodrilus limnobius* Bretscher, 1899**

Aulodrilus limnobius is rare in Ireland, having only been found in the Moyola River, Co. Derry and Ballyshunock Lake, Co. Waterford.

***Aulodrilus pigueti* Kowalewshi, 1914**

The only record of *Aulodrilus pigueti* in Ireland is a single specimen, which was found in a grab sample from the deepest point of Lough Keenaghan, Co. Fermanagh in 2008 (Sweeney and Gallagher, 2013). This very distinctive species had not been recorded on either of two sampling events at the same location in 2004.

***Aulodrilus pluriseta* (Piguet, 1906)**

Aulodrilus pluriseta is widespread and common in sublittoral and profundal zones of mesotrophic Irish lakes.

***Baltidrilus costatus* (Claparède, 1863)**

Baltidrilus costatus (formerly *Heterochaeta costata*) is very common in brackish estuaries and mudflats around the Irish coast

***Ilyodrilus templetoni* (Southern, 1909)**

The type specimen of *Ilyodrilus templetoni* originated in a pond in the Phoenix Park, Co. Dublin. However, this species is undoubtedly very much under-recorded in Ireland, because of its small size and similarity to other species. After the early work of Southern, there was an interval of almost a century until *I. templetoni* was recorded by the author in thirteen widely distributed Irish lakes.

***Limnodrilus claparedianus* Ratzel, 1868**

Limnodrilus claparedianus is distributed throughout Ireland, but is uncommon. It has mainly been found in lakes.

***Limnodrilus hoffmeisteri* Claparède, 1862**

Limnodrilus hoffmeisteri is one of the most frequently encountered macroinvertebrates in

Irish lakes and rivers that are subject to organic pollution. As much morphological variation occurs, it could be considered to be a species complex, as stated by Van Haaren and Soors (2013). Unusual specimens with an extra small tooth on anterior crotchets have been found in Lough Dan, Co. Wicklow.

***Limnodrilus profundicola* (Verrill, 1871)**

In summer 1982, 15 mature specimens, identified as *Limnodrilus profundicola*, were found among higher numbers of immature specimens of this genus in eight Ekman grab samples taken from the profundal zone of Lough Leane, Killarney, Co. Kerry. Despite annual monitoring of the same site from 1978 to 1997 and occasional sampling of the site before and since, this species was never recorded there on any other occasion (Bill Quirke, pers. comm.). It has never been recorded at any other Irish location. The identification of the Lough Leane specimens was based primarily on penial sheath length and shape and was confirmed by Tarmo Timm. However, Ton van Haaren (pers. comm.) suggests they could, in fact, be *L. hoffmeisteri* or any other yet to be described species within the *L. hoffmeisteri*-complex. This warrants further investigation.

***Limnodrilus udekemianus* Clarapède, 1862**

Limnodrilus udekemianus is an uncommon species, found in small polluted watercourses, where it can occasionally reach high abundances.

***Lophochaeta ignota* Štolc, 1886**

The older name of this species has been reinstated, replacing the more commonly known name, *Tubifex ignotus*. While it is quite widely distributed in rivers and the littoral zone of lakes throughout Ireland, it usually occurs in low abundance.

***Potamothenix bavaricus* (Öschmann, 1913)**

Potamothenix bavaricus is an uncommon species, which has been found at several still and slow-flowing sites throughout Ireland, but never in high abundance.

***Potamothenix hammoniensis* (Michaelsen, 1901)**

Potamothenix hammoniensis is found in the sublittoral and profundal of lakes throughout Ireland.

***Potamothenix heuscheri* (Bretscher, 1900)**

A Ponto-Caspian species, *Potamothenix heuscheri* was first recorded in Ireland from samples taken in 2007 at the deepest points of Drumlaheen Lough, Co. Leitrim, and Killinure Lough, Co. Westmeath, two lakes in the upper parts the River Shannon catchment (Sweeney *et al.*, 2013). It is thought likely that, because *P. heuscheri* is particularly tolerant of anoxic conditions (Milbrink, 1999), it could have survived transportation in bilge water of second-hand boats imported from Britain or continental Europe and launched on the River Shannon.

***Potamothrix moldaviensis* (Vejdovský et Mrazek, 1902)**

Potamothrix moldaviensis is a Ponto-Caspian species that has spread through much of Europe, with overseas dispersal attributed to transportation in the ballast water of ships (Milbrink and Timm, 2001). An oligochaete specimen in NMINH, on which the first published record of *P. moldaviensis* was based (McGrath, 1975) was checked and was found to have been a misidentification of *P. hammoniensis*. A specimen, collected by the author in a tributary of the River Shannon in Co. Roscommon in 2002 and the identification confirmed by Tarmo Timm, was deposited in NMINH. *P. moldaviensis* has since been found at locations throughout the Shannon catchment, as well as the lower parts of the River Suir and the catchments of the Rivers Bann and Erne. A recent record of *P. moldaviensis* from the Grand Canal Barrow Branch at Athy, Co. Kildare, indicates that this species will probably soon spread to the River Barrow.

***Potamothrix vejdoskyi* (Hrabě, 1941)**

In 2002, *Potamothrix vejdoskyi*, a Ponto-Caspian species, was recorded in both the Cross River, Co. Roscommon and in the River Tolka, Co. Dublin (Sweeney *et al.*, 2003). A single specimen was also found at the freshwater end of the Shannon estuary in 2003 (Sweeney, 2005). It has not been recorded since in Ireland.

***Psammoryctides barbatus* (Grube, 1891)**

Psammoryctides barbatus is found throughout Ireland in rivers and in the littoral zone of lakes, generally associated with sandy substrata. Its occurrence is not associated with organic pollution.

***Spirosperma ferox* (Eisen, 1879)**

Spirosperma ferox is widely distributed in Irish lakes and occasionally in rivers. It is usually found at low densities and is not associated with poor trophic status.

***Tubifex tubifex* (Müller, 1774)**

Although *Tubifex tubifex* is probably the best known aquatic oligochaete and is common and widespread, it is under-recorded due to difficulties in identification. Immature specimens are virtually impossible to distinguish from those of several other species and even mature specimens cause difficulties for the inexperienced worker. It is found in still and flowing freshwaters and can reach levels of high abundance at organically polluted sites.

***Tubificoides benedii* (d'Udekem, 1855)**

A widespread and common species of muddy saline intertidal habitats around all surveyed parts of the Irish coast, *Tubificoides benedii* reaches high densities in some estuaries.

***Tubificoides pseudogaster* (Dahl, 1960)**

Tubificoides pseudogaster is a common species of muddy saline intertidal habitats.

Subfamily RHYACODRILINAE

Species of the subfamily Rhyacodrilinae were included in the former family Tubificidae.

***Bothrioneurum vej dovskyanum* Štolc, 1888**

The only verified Irish record of *Bothrioneurum vej dovskyanum* is a single specimen collected in the littoral zone of Poulaphuca Reservoir, Co. Wicklow (Trodd and Kelly-Quinn, 2003).

***Branchiura sowerbyi* Beddard, 1892**

An Asian species, *Branchiura sowerbyi* has been known to occur in the giant lily pond glasshouse of the National Botanic Gardens, Glasnevin, Co. Dublin, since it was first discovered there in 1906 (Southern, 1909).

***Clitellio arenarius* (Müller, 1776)**

Clitellio arenarius is fairly widespread in intertidal mud around the Irish coast.

***Rhyacodrilus coccineus* (Vej dovský, 1875)**

Rhyacodrilus coccineus is widespread in rivers and streams with gravel and sand. It is quite intolerant of organic pollution.

***Rhyacodrilus falciformis* Bretscher, 1901**

In Ireland, *Rhyacodrilus falciformis* has only been found in two small streams in north Co. Dublin. A specimen, collected by Pat Colwell at Cloughran in 1980, is in NMNH. In 1998, a second specimen of *R. falciformis* was identified by the author from a sample taken at another stream in the same area.

Subfamily PHALLODRILINAE

Species of the subfamily Phallodrilinae were included in the former family Tubificidae.

***Atlantidrilus quadrisetis* (Erséus, 1982)**

The type specimen of *Atlantidrilus quadrisetis* was collected at a location within the Irish Continental Shelf, approximately 350 kilometers to the southwest of Mizen Head and at a depth of over 3,300 metres (Erséus, 1982).

***Inermidrilus georgei* (Erséus, 1987)**

Healy (1996) recorded *Inermidrilus georgei* from a rock pool at Carnsore Point, Co. Wexford. This is the only known Irish record of this species.

***Phallodrilus parthenopaeus* Pierantoni, 1902**

The only Irish record of *Phallodrilus parthenopaeus* is that of a single specimen from Sherkin Island, Co. Cork (Erséus, 1987).

***Thalassodrilus prostatus* (Knöllner, 1935)**

McGrath (1975) recorded *Thalassodrilus prostatus* on the shore at the Pigeonhouse, Co. Dublin, and deposited the specimen in NMNH. The only other known record of this species

was collected by the author in Cork Harbour in 2013. However, as this species is difficult to separate from the more common *Clitellio arenarius* when immature and because oligochaetes from the Irish shoreline are seldom fully identified, it is thought likely that *T. prostatus* is probably more common than these records might suggest.

Family PRISTININAE

Two species of the genus *Pristina* are known from Ireland. A problem exists with unconfirmed records of a third species in this family because, if immature specimens of the former Family Tubificidae with hair chaetae present are mistakenly keyed out using the Naididae section of the commonly used identification key by Brinkhurst (1971), the species arrived at is *P. idrensis* (Sperber, 1948), which is a synonym of *P. rosea* (Piguet, 1906).

***Pristina foreli* (Piguet, 1906)**

The only confirmed Irish record of *Pristina foreli* is a single specimen collected in 2010, downstream of a wastewater treatment plant outfall in a small watercourse in Co. Wexford (Sweeney and Sweeney, 2016). Loden and Harman (1980) suggest that *P. foreli* is an ecomorph of *P. aequiseta* Bourne, 1891, and that the distinctive giant ventral chaetae which distinguish the latter are induced by environmental conditions. There are no Irish records of *P. aequiseta*, which is widely distributed in Britain and continental Europe (Timm and Veldhuijzen van Zanten, 2002).

***Pristina longiseta* Ehrenberg, 1828**

Pristina longiseta is a very distinctive worm, which is quite common in the Killarney Lakes, Co. Kerry, but which has not been recorded with certainty elsewhere in Ireland.

Family LUMBRICULIDAE

***Lumbriculus variegatus* (Müller, 1774)**

Southern (1909) states that *Lumbriculus variegatus* is the most common aquatic oligochaete in the British Isles. It is widespread throughout Ireland in rivers and in the shallower parts of lakes and is tolerant of moderate organic pollution and enrichment. However, it does not occur in the very high densities at which some of the tubificid species can be found.

***Rhynchelmis limnosella* Hoffmeister, 1843**

In Ireland, *Rhynchelmis limnosella* is only known from the Annacloy River, Co. Down, where it was recorded by Wright *et al.* (2000).

***Stylodrilus heringianus* Clarapède, 1862**

Stylodrilus heringianus is widespread and common in shallow rivers and streams throughout Ireland. It is not very tolerant of organic pollution.

***Stylodrilus lemami* (Grube, 1879)**

Stylodrilus lemami occurs at several locations, but is an uncommon species of Irish rivers.

Family LUMBRICIDAE

***Eiseniella tetraedra* (Savigny, 1826)**

While several species of the family Lumbricidae can live for a few days in freshwater habitats, the only one that can be regarded as truly aquatic is *Eiseniella tetraedra*, which is common in streams and rivers, but never occurs in high abundance.

Family ENCHYTRAEIDAE

Enchytraeids are widely regarded as the most difficult oligochaetes to identify. The vast majority of records of aquatic Irish enchytraeids come from the work of the late Brenda Healy. As the author is not very familiar with this family, species distribution is not commented on here. They are mainly terrestrial oligochaetes, but many species have marked aquatic tendencies and can be found in samples taken from a variety of aquatic habitats. Healy and Bolger (1984) list the following species as showing a preference for wet soils.

***Mesenchytraeus armatus* (Levinsen, 1884)**

***Mesenchytraeus sanguineus* Nielsen and Christensen, 1959**

***Cernosvitoviella atrata* (Bretscher, 1903)**

***Cernosvitoviella goodhui* Healy, 1975**

***Cernosvitoviella sphaerotheca* Healy, 1975**

***Cernosvitoviella palustris* Healy, 1979**

***Achaeta aberrans* Nielsen and Christensen, 1961**

***Cognettia sphagnetorum* (Vejdovský, 1877)**

***Cognettia glandulosa* (Michaelsen, 1888)**

***Cognettia hibernica* Healy, 1975**

***Henlea perpusilla* Friend, 1911; augm. Cernosvitov 1937**

***Fridericia perrieri* (Vejdovsky, 1877)**

***Fridericia polychaeta* Bretscher, 1900**

***Marionina argentea* (Michaelsen, 1889)**

***Marionina riparia* Bretscher, 1899**

***Marionina filiformis* Nielsen and Christensen, 1959**

Three other aquatic species were found in a quaking marsh in Co. Louth (Healy, 1987): *Enchytraeus christenseni* Dózsa-Farkas, 1992 (recorded under the synonym *E. minutus*), *Henlea ventriculosa* (d'Udekem, 1854) and *Buchholzia fallax* Michaelsen, 1887

Marine species

Marine enchytraeids are mainly associated with habitats in the upper intertidal, and only the genus *Grania* is widespread in offshore benthos (Erséus and Healy, 2001). The type specimen of *Grania maricola* Southern, 1913 was collected at Clare Island, Co. Mayo (Southern, 1913). The following species were recorded from Irish marine and brackish habitats by Healy (1979b, 1996).

***Grania pusilla* Erséus, 1974**

***Cernosvitoviella immota* (Knöllner, 1935)**

***Enchytraeus albidus* Henle, 1837**

***Enchytraeus capitatus* von Bülow, 1957**

***Fridericia callosa* (Eisen, 1878)**

***Lumbricillus rivalis* Levinsen, 1883; augm. Ditlevsen, 1904**

***Lumbricillus kaloensis* Nielsen and Christensen, 1959**

***Lumbricillus semifuscus* (Claparède, 1861); augm. Stephenson, 1911**

***Lumbricillus viridis* Stephenson, 1911; augm. 1922**

***Lumbricillus pagenstecheri* Ratzel, 1869**

***Lumbricillus bulowi* Nielsen and Christensen, 1959**

***Marionina achaeta* Lasserre, 1964**

***Marionina macgrathi* Healy, 1996**

***Marionina ulstrupae* Healy, 1996**

***Marionina preclitellochaeta* Nielsen and Christensen, 1963**

***Marionina subterranea* (Knöllner, 1935)**

***Marionina southerni* Cernosvitov, 1937**

***Marionina sjaelandica* Nielsen and Christensen, 1961**

***Marionina spicula* Leuckart, 1847**

***Marionina appendiculata* Nielsen and Christensen, 1959**

Family PHREODRILIDAE

The global distribution of the family Phreodrilidae indicates a Gondwanan origin, with most species occurring in the Southern Hemisphere (Martin and Ohtaka, 2008). The first record of this family in Europe was a single specimen collected in a small tributary of the River Lagan in Co. Down in 2000 (Gunn *et al.*, 2003). However, because the specimen was cleared in polyvinyl lactophenol, the internal structures necessary for species level identification were dissolved. Pinder *et al.* (2013) consider the identifiable features of the River Lagan specimen to be very similar to those of *Insulodrilus* cf. *lacustris* (Benham, 1903), which was found in the Thames Estuary, London, England, in 2012. In 2006, over 100 specimens of a hitherto unknown species

of the genus *Insulodrilus* were found at three bogland sites in Co. Mayo (Schmelz *et al.*, 2015), raising the question as to whether this species is part of the natural fauna of Ireland or a recent introduction.

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AN ANNOTATED INVENTORY OF THE CHIRONOMIDAE (INSECTA: DIPTERA) OF COUNTY MEATH, IRELAND

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Abstract

Records of 196 species of Chironomidae (Insecta: Diptera) are documented from sixty two sites in County Meath – one site in the River Dee catchment (Hydrometric Area 6), fifty four sites in the Rivers Boyne and Blackwater catchments (Hydrometric Area 7) and seven sites in the River Nanny/Delvin catchments (Hydrometric Area 8). Twelve species are recorded as new for County Meath: *Macropelopia* (*Macropelopia*) *adaucta*, *Limnophyes gurgicola*, *Psectrocladius* (*Allopsectrocladius*) *platypus*, *Psectrocladius* (*Psectrocladius*) *sordidellus*, *Rheocricotopus* (*Psilocricotopus*) *glabricollis*, *Smittia contingens*, *Chironomus* (*Chironomus*) *commutatus*, *Chironomus* (*C.*) *lugubris*, *Chironomus* (*C.*) *pseudothummi*, *Glyptotendipes* (*Glyptotendipes*) *barbipes*, *Paracladopelma camptolabis* and *Tanytarsus buchonius*.

Key words: Chironomidae, Ireland, County Meath, distribution.

Introduction

Conservation and sustainable use of biodiversity is a prime aim of Ireland's National Biodiversity Plan (DAHGI, 2002). One principle recognised in the Plan is that "each form of biological diversity is unique, and of value in its own right". Acknowledgment of this principle, and a consequent requirement to conserve biological diversity, presupposes a knowledge of the extant biodiversity. Compilation of basic species inventories for conservation of natural heritage is a challenging although fundamental task but information on the occurrence and distribution of different groups of plant and animal species in Ireland varies considerably. Some features of biodiversity have been previously documented at a national level (Lucey and Doris, 2000) but knowledge of the natural heritage of species, habitats and ecosystems remains deficient in many regions/counties of the country, despite decades of faunistic and taxonomic studies of some groups. Recognising this shortcoming at a local level, Meath County Council adopted proposals from the Biodiversity and Natural Heritage Working Group of the County Meath Heritage Forum for the Council's 2015-2020 Heritage Plan "to promote inventory, understanding and care of the biodiversity of the county" under Strategic Theme 2 of the Heritage Plan and Objectives 1 and 2 of the Biodiversity Action Plan.

This paper is a contribution to that objective by providing an assessment of the biodiversity of one element of the freshwater fauna of County Meath. Freshwater ecosystems offer habitats not only to fish and aquatic birds but also to a diverse range of smaller macroinvertebrates, such as annelids, crustaceans, molluscs and insects. There are approximately 1,500 species of aquatic insect in Ireland of which the Diptera - two winged insects - are the most diverse with over 950 species (Ashe *et al.*, 1998). Among these insects the members of the Family Chironomidae, or non-biting midges whose early life history stages of egg-larva-pupa occur in water or moist semi-aquatic habitats, comprise the single largest taxon with 546 species level taxa (Murray *et al.*, 2013, 2014, 2015) and account for approximately 57% of the known Irish Diptera. The recognised tolerance of some species of Chironomidae to natural and man-induced adverse conditions, or habitat disturbance, makes these insects a significant group for biodiversity and water quality biomonitoring studies. Supported by a grant from the Meath County Council Heritage Grants Scheme 2016, an annotated inventory and distribution data for species of Chironomidae currently known to occur in County Meath has been compiled and is provided here.

Study area and methods

County Meath, lying north of Dublin, has a relatively short coastline of 10km on the Irish Sea (Fig. 1). The county has a generally low-lying variable landscape drained for the most part by the slow flowing Rivers Boyne-Blackwater and Nanny that enter the Irish Sea at Drogheda and Laytown respectively and a smaller River Delvin that straddles the border of County Dublin and enters the sea at Knocknagin, near Gormanstown. A comprehensive review of the geology and landscape of County Meath is given by Meehan (2012).

Information on the Chironomidae of County Meath has been compiled for this study from a review of published records and from recent personal collections. Data from sixty-two locations in the county are presented and species distribution information is given by reference to collection site(s) in parts of three of the five Hydrometric Areas (HA) that drain the terrain of County Meath (Fig. 1). One site is located on the upper course of the River Dee (HA6) that flows eastwards through the neighbouring County Louth. Collections are documented from fifty-four sites in the River Boyne-Blackwater catchment (HA7) and from seven sites in the Rivers Nanny and Delvin catchment (HA8). To date, records of Chironomidae are lacking from the sections of Hydrometric Areas 9 and 26 that drain parts of Meath. Further information on the Hydrometric Areas of Ireland is given by Murray *et al.* (2013).

Sites are identified by a hyphenated string of three digits (Table 1). The first digit denotes the Hydrometric Area (i.e. 6, 7 or 8), followed by a hyphen and the remaining two digits define the site of the species record, e.g. 7-01 denotes Site number 1 in Hydrometric Area 7 etc. Dates of

records prior to 2015 have been given in Murray (2015a) and Murray *et al.* (2013, 2014, 2015) and are not repeated here. However, dates of more recent new records from 2015 and 2016 are given. Species new to County Meath are denoted by the symbol “§” and unpublished recent site records for species already known are marked by the symbol “+”. The species record data has been submitted to the National Biodiversity Data Centre (Murray, 2015a) and maps of the known distribution of individual species in Ireland may also be viewed at the website <www.biodiversityireland.ie>.

Slide mounted voucher material of 41 species from County Meath have been incorporated into the Heritage Council Collection of Irish Chironomidae (HCCIC) in the National Museum of Ireland - Natural History (Murray, 2005). In that collection, voucher slides were assigned individual numbers and voucher specimens in the following list are indicated by the letters “HCCIC” followed by the slide position number, e.g. for the species *Larsia atrocincta* the text “HCCIC #35, #36” indicates that voucher slide preparations of this species are at positions 35 and 36 in the HCCIC.

Results

Some 196 species of Chironomidae are currently known to occur in County Meath. These are listed by subfamily and alphabetically by genus and species following the taxonomic sequence in the World Catalogue of Chironomidae (Ashe and O’Connor, 2009, 2012) adopting recent revisions of generic and subgeneric status of some Tanypodinae by Da Silva and Ekrem (2015). Comments on some species records are given.

Subfamily TANYPODINAE

***Ablabesmyia* (*Ablabesmyia*) *longistyla* Fittkau, 1962**

Sites 7-12, 7-24, 7-26, 7-27, 7-31. First record in November 1975 at site 7-33 (Murray *et al.*, 2013: 218).

***Ablabesmyia* (*A.*) *monilis* (Linnaeus, 1758)**

Sites 7-15, 7-23, 7-24, 7-25, 7-26, 7-31, 7-35. First record in November 1975 at site 7-35 (Murray *et al.*, 2013: 226).

***Ablabesmyia* (*A.*) *phatta* (Egger, 1863)**

Site 7-11. Record from August 1968 (Murray, 1972).

***Arctopelopia* *griseipennis* (van der Wulp, 1859)**

Site 7-44. Record from July 1994 (Murray *et al.*, 2013: 235).

***Clinotanypus* (*Clinotanypus*) *nervosus* (Meigen, 1818)**

Sites 7-31, 7-35. First record in November 1975 at site 7-31 (Murray *et al.*, 2013: 237).

***Conchapelopia (Conchapelopia) hittmairorum* Michiels and Spies, 2002**

Site 7-19. Record from August 1995 (Murray, 2006; Murray *et al.*, 2013: 238).

***Conchapelopia (C.) melanops* (Meigen, 1818)**

Sites 6-01, 7-11, 7-15, 7-23, 7-24, 7-26, 7-27, 8-01, 8-02, 8-03. First record in November 1975 at site 7-15 (Murray *et al.*, 2013: 240).

***Conchapelopia (C.) pallidula* (Meigen, 1818)**

Sites 7-15, 7-19, 7-25, +7-49, 8-03. First record in July 1988 at site 7-15 (Murray *et al.*, 2013: 243) and most recently at Site 7-49 (Murray, 2015b).

***Conchapelopia (C.) viator* (Kieffer, 1911)**

Sites 7-11, 7-24, 7-25, 7-27. First recorded in July 1968 at Site 7-11 (Murray, 1972; Murray *et al.*, 2013: 245).

***Krenopelopia nigropunctata* (Staeger, 1839)**

Site 8-02. Record from June 1968 (Murray, 1972; Murray *et al.*, 2013: 246).

***Larsia atrocincta* (Goetghebuer, 1942)**

Site 7-15 (HCCIC #35, #36). Record from June 1974 (Murray *et al.*, 2013: 247).

§ *Macropelopia (M.) adaucta* Kieffer, 1916

Site 7-51. This is the first published record from County Meath in collections made on 3 July 2016.

***Macropelopia (M.) nebulosa* (Meigen, 1804)**

Sites 6-01, 7-05, 7-15, 7-17 (HCCIC #42), 7-18, 7-23, 7-26, 7-27, 7-32, 7-43, 7-44, 8-01 (HCCIC #41), 8-02. First record in March 1976 at site 7-32 (Murray *et al.*, 2013: 255).

***Macropelopia (M.) notata* (Meigen, 1818)**

Sites 7-15, 8-02. First record in June 1974 at site 7-15 (Murray *et al.*, 2013: 257).

***Monopelopia (Monopelopia) tenuicalcar* (Kieffer, 1918)**

Site 7-18, +7-51, +7-52. Record from site 7-18 on June 1974 (Murray *et al.*, 2013: 257) and unpublished records from Sites 7-51 and 7-52 on 3 July 2016.

***Nilotanypus dubius* (Meigen, 1804)**

Sites 7-23, 7-24, 7-25. First record in July 1989 at site 7-23 (Murray *et al.*, 2013: 260).

***Procladius (Holotanypus) choreus* (Meigen, 1804)**

Sites 7-17, 7-24, 7-26, 7-44, +7-51, +7-52. First record in July 1989 at site 7-24 (Murray *et al.*, 2013: 271). Unpublished records from Sites 7-51 and 7-52 on 3 July 2016.

***Procladius (H.) sagittalis* (Kieffer, 1909)**

Sites 7-43, 7-44, +7-51. First record in June 1995 at site 7-44 (Murray *et al.*, 2013: 277). Unpublished record from Site 7-51 on 3 July 2016.

***Psectrotanypus varius* (Fabricius, 1787)**

Sites 7-11, 7-17 (HCCIC #75, #76), 7-31, 7-36, 7-44, 8-01. First record in December 1975 at

site 7-31 (Murray *et al.*, 2013: 289).

***Rheopelopia maculipennis* (Zetterstedt, 1838)**

Sites 7-07, 7-19, 7-11, 7-15, 7-19, 7-20, 7-21, 7-23, 7-24, 7-25, 7-26, 7-28, 7-35, 7-37. First record in July 1984 at site 7-15 (Murray *et al.*, 2013: 291).

***Rheopelopia ornata* (Meigen, 1838).**

Sites 7-15 (HCCIC #81), 7-23, 7-24, 7-34, 7-35. First record in June 1974 at site 7-15 (Murray *et al.*, 2013: 292).

***Tanypus (Tanypus) punctipennis* (Meigen, 1818)**

Site 7-12. Record from June 1974 (Murray *et al.*, 2013: 293).

***Thienemannimyia (Hayesomyia) tripunctata* (Goetghebuer, 1932)**

Site 7-15. Record from July 1984 (Murray *et al.*, 2013: 294).

***Thienemannimyia (Thienemannimyia) carnea* (Fabricius, 1805)**

Site 7-11 (HCCIC #89, #90). First recorded at this site in July 1968 (Murray, 1972). The only other Irish record to date is from the River Leitrim, Hilltown, County Down by P. H. Langton (Murray *et al.*, 2013: 295).

***Thienemannimyia (T.) laeta* (Meigen, 1818)**

Sites 7-11, 7-19, 7-23, 7-24, 7-26, 7-34, 7-35, 7-37, 7-48. First record at Site 7-11 in August 1968 (Murray, 1972; Murray *et al.*, 2013: 295) and most recently at Site 7-48 (Murray, 2015b).

***Thienemannimyia (T.) lentiginosa* (Fries, 1823)**

Site 7-19 (HCCIC #97). Record from October 1994 (Murray *et al.*, 2013: 296).

***Thienemannimyia (T.) pseudocarnea* Murray, 1976**

Sites 7-06, 7-11, 7-15, 7-19, 7-23, 7-23, 7-26, 7-27, 7-28, 7-32, 7-34, 7-35, 7-37. First record at Site 7-15 in June 1974 (Murray, 1976; Murray *et al.*, 2013: 299).

***Trissopelopia longimana* (Staeger, 1839)**

Sites 7-11, 7-15 (HCCIC #103), 7-26, 7-27, 7-44, 7-44, 8-02. First record at Site 8-02 in July 1968 (Murray, 1972; Murray *et al.*, 2013: 302).

***Xenopelopia falcigera* (Kieffer, 1911)**

Site 7-38. Record from April 1968 (Murray, 1972; Murray *et al.*, 2013: 303).

***Xenopelopia nigricans* (Goetghebuer, 1927)**

Site 7-38 (HCCIC #107). Record from April 1968 (Murray, 1972; Murray *et al.*, 2013: 303).

***Zavrelimyia (Paramerina) cingulata* (Walker, 1856)**

Sites 7-15, 7-23, 7-24, 7-25, 7-26. First record at Site 7-15 in July 1988 (Murray *et al.*, 2013: 264).

***Zavrelimyia (P.) divisa* (Walker, 1856)**

Sites 7-11, 7-15, 7-28. First record at Site 7-11 in August 1968 (Murray, 1972; Murray *et al.*, 2013: 266).

***Zavreliomyia (Zavreliomyia) barbatipes* (Kieffer, 1911)**

Sites 8-01, 8-02. First record at Site 8-01 in August 1968 (Murray *et al.*, 2013: 304).

***Zavreliomyia (Z.) hirtimana* (Kieffer, 1918)**

Sites 7-11, 7-15, 7-16 (HCCIC #111), 7-44. First record at Site 7-15 in June 1974 (Murray *et al.*, 2013: 305).

***Zavreliomyia (Z.) nubila* (Meigen, 1813)**

Only known from County Meath

Sites 7-17, 8-01 (HCCIC #116). First record at Site 8-01 in July 1968 (Murray, 1972; Murray *et al.*, 2013: 306).

Subfamily DIAMESINAE

***Diamesa incallida* (Walker, 1856)**

Site 7-33. Record from October 1967 (Murray, 1972; Murray *et al.*, 2013: 307).

***Diamesa insignipes* Kieffer, 1908**

Site 7-02. Record from April 1979 (Murray *et al.*, 2013: 307).

***Potthastia gaedii* (Meigen, 1838)**

Sites 7-02, 7-11, 7-15, 7-15, 7-20, 7-21, 7-23, 7-24, 7-27, 7-28, 7-33, 7-34, 7-35, 7-39, 7-48, 8-03, 8-04. First record at Site 7-11 in May 1968 (Murray, 1972; Murray *et al.*, 2013: 312) and most recently in May 2015 at Site 7-48 (Murray, 2015b).

***Potthastia longimanus* Kieffer, 1922**

Sites 7-06, 7-19, 7-24, 7-25. First record from Site 7-19 in August 1988 (Murray *et al.*, 2013: 317).

Subfamily PRODIAMESINAE

***Prodiamesa olivacea* (Meigen, 1818)**

Sites 7-03, 7-05, 7-11, 7-12, 7-18, 7-23, 7-26, 7-27, 7-31, 7-32, 7-33, 7-35, 7-37, 7-41, 8-02. First record at Site 7-11 in January 1966 (Murray, 1972; Murray *et al.*, 2013: 325).

Subfamily ORTHOCLADIINAE

***Acricotopus lucens* (Zetterstedt, 1850)**

Site 8-02. Record from September 1968 (Murray, 1972; Murray *et al.*, 2014: 64).

***Brillia bifida* (Kieffer, 1909)**

Sites 6-01, 7-02, 7-03, 7-16, 7-23, 7-24, 7-26, +7-54, 8-01, 8-02. First record at Site 8-02 in July 1967 (Murray, 1972; Murray *et al.*, 2014: 67) and most recently on 6 February 2016 at site 7.54.

***Brillia longifurca* Kieffer, 1921**

Sites 7-11, 7-12, 7-34, 8-02. First record at Site 8-02 in May 1968 (Murray, 1972; Murray *et al.*, 2014: 69).

***Camptocladius stercorarius* (De Geer, 1776)**

Site 8-02 (HCCIC #183). Record from August 1999 (Murray *et al.*, 2014: 71).

***Cardiocladius fuscus* Kieffer, 1924**

Sites 7-11, 7-15, 7-19, 7-20, 7-23, 7-23. First record at Site 7-15 in July 1988 (Murray *et al.*, 2014: 72).

***Chaetocladius (Chaetocladius) perennis* (Meigen, 1830)**

Sites 7-12, 8-01 (HCCIC #197). First record at Site in May 1982 (Murray *et al.*, 2014: 74).

***Chaetocladius (C.) piger* (Meigen, 1830)**

Site 8-01. Record from November 2005 (Murray *et al.*, 2014: 74).

***Corynoneura celeripes* Winnertz, 1852**

Site 8-02. Record from November 2012 (Murray *et al.*, 2014: 76).

***Corynoneura coronata* Edwards, 1924**

Site 8-03. Record from June 2006 (Murray *et al.*, 2014: 77).

***Corynoneura gratias* Schlee, 1968**

Site 8-03. Record from June 2006 (Murray *et al.*, 2014: 78).

***Corynoneura lacustris* Edwards, 1924**

Site 7-48. Record from May 2015 during the inaugural field outing of the Boyne Valley Natural History Field Club (Murray, 2015b).

***Corynoneura lobata* Edwards, 1924**

Site 8-01. Record from January 2001 (Murray *et al.*, 2014: 79).

***Cricotopus (Cricotopus) albiforceps* (Kieffer, 1916)**

Sites 7-06, 7-09, 7-23. First record at Site 7-06 in July 1981 (Murray *et al.*, 2014: 81).

***Cricotopus (C.) annulator* Goetghebuer, 1927**

Sites 7-06, 7-09, 7-11, 7-19, 7-23, 7-23, 7-24, 7-26. First record, as *Cricotopus motitator* (Linnaeus), at Site 7-06 in July 1981 (Murray *et al.*, 2014: 83).

***Cricotopus (C.) bicinctus* (Meigen, 1818)**

Sites 6-01, 7-01, 7-11, 7-15, 7-19, 7-21, 7-23, 7-25, 7-27, 7-34, 7-35, 7-37. First record from Site 7-23 in July 1981 (Murray *et al.*, 2014: 87).

***Cricotopus (C.) curtus* Hirvenoja, 1973**

Site 7-23. Record from July 1981 (Murray *et al.*, 2014: 89).

***Cricotopus (C.) fuscus* (Kieffer, 1909)**

Sites 6-01, 7-23, 7-24, 7-25. First record from Site 7-23 in July 1981 (Murray *et al.*, 2014: 92).

***Cricotopus (C.) pulchripes* Verrall, 1912**

Site 7-21. Record from August 1981 (Murray *et al.*, 2014: 94).

***Cricotopus (C.) tibialis* (Meigen, 1804)**

Site 7-11. Record from May 1968 (Murray, 1972; Murray *et al.*, 2014: 96).

***Cricotopus (C.) tremulus* (Linnaeus, 1758)**

Site 7-34. Record from August 1988 (Murray *et al.*, 2014: 98).

***Cricotopus (C.) triannulatus* (Macquart, 1826)**

Sites 6-01, 7-11, 7-15, 7-21, 7-34, 7-35. First record from Site 7-15 in May 1982 (Murray *et al.*, 2014: 99).

***Cricotopus (C.) trifascia* Edwards, 1929**

Sites 6-01, 7-02, 7-03, 7-06, 7-09, 7-11, 7-15, 7-19, 7-21, 7-23, 7-24, 7-25, 7-26, 7-27, 7-34, 7-35. First record from Site 7-23 in July 1981 (Murray *et al.*, 2014: 101).

***Cricotopus (C.) tristis* Hirvenoja, 1973**

Site 7-06. Record from July 1981 (Murray *et al.*, 2014: 102).

***Cricotopus (Isocladus) pilatarsis* (Zetterstedt, 1850)**

Site 6-01. Record from July 1983 (Murray *et al.*, 2014: 105).

***Cricotopus (I.) sylvestris* (Fabricius, 1794)**

Sites 7-25, 7-27. First record from Site 7-25 in July 1989 (Murray *et al.*, 2014: 107).

***Cricotopus (I.) tricinctus* (Meigen, 1818)**

Sites 7-23, 7-26. First record from Site 7-23 in July 1989 (Murray *et al.*, 2014: 108).

***Diplocladius cultriger* Kieffer, 1908**

Site 8-02 (HCCIC #287). Record from December 1996 (Murray *et al.*, 2014: 110).

***Epoicocladus ephemeræ* (Kieffer, 1924)**

Site 7-37. Record from August 1988 (Murray *et al.*, 2014, 110).

***Eukiefferiella brevicar* (Kieffer, 1911)**

Site 8-02. Record from November 2012 (Murray *et al.*, 2014: 111).

***Eukiefferiella claripennis* (Lundbeck, 1898)**

Sites 6-01, 7-06, 7-09, 7-11, 7-15, 7-19, 7-23, 7-28, 7-34, 7-35, 7-48, 8-02, 8-04. First record from Site 7-06 in July 1981 (Murray *et al.*, 2014: 113) and most recently at site 7-48 in May 2015 (Murray, 2015b).

***Eukiefferiella clypeata* (Thienemann, 1919)**

Sites 7-11, 7-15, 7-19, 7-20, 7-21, 7-23, 7-28, 7-34, 7-35, 7-37. First record from Site 7-23 in July 1981 (Murray *et al.*, 2014: 116).

***Eukiefferiella coerulescens* (Kieffer, 1926)**

Site 7-48. First record for County Meath, May 2015 (Murray, 2015b).

***Eukiefferiella dittmari* Lehmann, 1972**

Sites 7-07, 7-15, 7-37, 8-05. First record from Site 7-15 in July 1988 (Murray *et al.*, 2014: 121).

***Eukiefferiella gracei* (Edwards, 1929)**

Sites 7-02, 7-28, 7-39, 7-40, 7-48, 8-03, 8-04, 8-05. First record from Site 7-02 in June 1989 (Murray *et al.*, 2014: 122) and most recently at Site 7-48 (Murray, 2015b).

***Eukiefferiella ilkleyensis* (Edwards, 1929)**

Sites 6-01, 7-01, 7-06, 7-09, 7-11, 7-15, 7-19, 7-21, 7-23, 7-24, 7-28, 7-30, 7-34, 7-35, 7-37, 7-39, 8-03, 8-05. First record from Site 7-09 in July 1981 (Murray *et al.*, 2014: 123).

***Eurycnemus crassipes* (Meigen, 1810)**

Sites 7-15, 7-19 (HCCIC #316), 7-20, 7-23, 7-23, 7-25, 7-28, 7-34. First record from Site 7-15 in June 1980 (Murray *et al.*, 2014: 126).

***Gymnometriocnemus* (*Gymnometriocnemus*) *subnudus* (Edwards, 1929)**

Sites 7-13 (HCCIC #319), 8-01, 8-02. First record from Site 7-13 in April 2005 (Murray *et al.*, 2014: 127).

***Heleniella ornaticollis* (Edwards, 1929)**

Sites 7-15, 7-48. First record from Site 7-15 in July 1988 (Murray *et al.*, 2014: 129) and most recently at Site 7-48 (Murray, 2015b).

***Heterotrissocladius marcidus* (Walker, 1856)**

Site 8-02. Record from April 2006 (Murray *et al.*, 2014: 136).

§ *Limnophyes gurgicola* (Edwards 1929)

Site +7-51. This is the first published record of this species in County Meath from collections on 3 July 2016.

***Limnophyes habilis* (Walker, 1856)**

Site 8-02 (HCCIC #353). Record from January 1999 (Murray *et al.*, 2014: 138).

***Limnophyes minimus* (Meigen, 1818)**

Sites 7-11, 8-01, 8-02. First record from Site 7-11 in August 1968 (Murray, 1972; Murray *et al.*, 2014: 139).

***Limnophyes pentaplastus* (Kieffer, 1921)**

Sites 7-29, 8-01 (HCCIC #361), 8-02. First record from Site 8-02 in April 1973 (Murray *et al.*, 2014: 140).

***Limnophyes platystylus* Murray, 2007**

Only known from County Meath

Site 8-02 (HCCIC #363). First recorded in May 2005, this site is the type locality for the species described from County Meath. Slide-mounted holotype material is deposited in the National Museum of Ireland – Natural History (Murray, 2007; Murray *et al.*, 2014: 140).

***Metriocnemus* (*Inermipupa*) *carmencitabertarum* Langton and Cobo, 1997**

Sites 7-17, 7-45, 7-46, 7-47, +7-53, 8-01, 8-07. This is a recent immigrant species, first recorded in Ireland from County Meath at Site 7-45 in March 2012 and subsequently from the other above mentioned sites. The record from Site 7-53 on 3 July 2016 is previously unpublished. The species is also known from Counties Dublin, Kildare, Wicklow (Murray, 2012, 2013, 2015a, c) and Derry (Murray *et al.*, 2014: 141).

Metriocnemus (Metriocnemus) eurynotus (Holmgren, 1883)

Sites 7-38, 7-44, 8-01 (HCCIC #378), 8-02. First record at Site 7-38 in March 1968 (Murray, 1972; Murray *et al.*, 2014: 143).

Metriocnemus (M.) fuscipes (Meigen, 1818)

Sites 7-11, 7-38, +7-52, 8-01. First recorded at Site 7-38 in April 1968 (Murray, 1972; Murray *et al.*, 2014: 144). The record from Site 7-52 on 3 July 2016 is previously unpublished.

Metriocnemus (M.) picipes (Meigen, 1818)

Site 8-01. Record from April 1999 (Murray *et al.*, 2014: 144).

Nanocladius (Nanocladius) dichromus (Kieffer, 1906)

Sites 7-11, 7-21, 7-23, 7-24, 7-34, +7-48. Originally reported as *Microcricotopus bicolor* (Zetterstedt) from Site 7-11 in July 1968 (Murray, 1972; Murray *et al.*, 2014: 149) and most recently in May 2015 at Site 7-48 (Murray, 2015b).

Nanocladius (N.) rectinervis (Kieffer, 1911)

Sites 6-01, 7-06, 7-09, 7-15, 7-21, 7-23, 7-26, 7-34, 7-35, 7-37, 8-02, 8-03, 8-04, 8-05. First record from Site 7-06 in July 1981 (Murray *et al.*, 2014: 152).

Orthocladius (Eudactylocladius) fuscimanus (Kieffer, 1908)

Site 7-17 (HCCIC #394). Record from June 2000 (Murray *et al.*, 2014: 154).

Orthocladius (Euorthocladius) rivicola Kieffer, 1911

Sites +7-48, 8-03, 8-04. First record from Site 8-03 in June 2006 (Murray *et al.*, 2014: 156) and most recently at Site 7-48 in May 2015 (Murray, 2015b).

Orthocladius (E.) thienemanni (Kieffer, 1906)

Sites 7-28, 7-48. First record for County Meath from Site 7-48 in May 2015 (Murray, 2015b).

Orthocladius (Orthocladius) oblidens (Walker, 1856)

Sites 6-01, 7-06, 7-09, 7-15, 7-19, 7-23, 7-34, 7-35, 7-37, 8-03. First record from Site 7-06 in July 1981 (Murray *et al.*, 2014: 162).

Orthocladius (O.) pedestris Kieffer, 1909

Site 8-03. First record from June 2006 (Murray *et al.*, 2014: 164).

Orthocladius (O.) rhyacobius Kieffer, 1911

Sites 7-39, +7-48. First record from Site 7-39 in May 1995 cited as *Orthocladius (O.) obumbratus* sensu Langton and Visser 2003 in Murray *et al.* (2014: 163). Most recent record at Site 7-48 in May 2015 (Murray, 2015b).

Orthocladius (O.) rubicundus (Meigen, 1818)

Sites 7-02, 7-06, 7-11, 7-15, 7-19, 7-20, 7-21, 7-23, 7-24, 7-25, 7-28, 7-34, 7-35, 7-37, 7-39, +7-48, 8-03, 8-04. First record from Site 7-11 in May 1968 (Murray, 1972; Murray *et al.*, 2014: 168) and most recently found at Site 7-48 in May 2015 (Murray, 2015b).

***Orthocladus (O.) wetterensis* Brundin, 1956**

Site 8-03. Recorded at this site only in June 2006 (Murray *et al.*, 2014: 169).

***Paracladius conversus* (Walker, 1856)**

Sites 7-24, 7-25, 7-32, 7-40, 7-41. First record from Site 7-32 in March 1976 (Murray *et al.*, 2014: 173).

***Parakiefferiella bathophila* (Kieffer, 1912)**

Sites 7-11, 7-15, 7-21, 7-23, 7-28, 7-34, 7-35, 8-03, 8-04. First record from Site 7-23 in July 1981 (Murray *et al.*, 2014: 177).

***Parakiefferiella scandica* (Brundin, 1947).**

Site 7-48. First record for County Meath in May 2015 (Murray, 2015b).

***Parametriocnemus stylatus* (Spärck, 1923)**

Sites 6-01, 7-02, 7-06, 7-08, 7-09, 7-10, 7-11, 7-12, 7-13, 7-15, 7-17 (HCCIC #445), 7-19, 7-21, 7-22, 7-23, 7-24, 7-26, 7-28, 7-34, 7-35, 7-37, 7-48, 7-49, 8-02. First record at Site 7-11 in May 1968 (Murray, 1972; Murray *et al.*, 2014: 184) and most recently at Sites 7-48 and 7-49 in May 2015 (Murray, 2015b).

***Paraphaenocladus exagitans* (Johannsen, 1905) subspecies *monticola* Strenzke, 1950**

Site 7-13. First record from this site in May 1986 (Murray *et al.*, 2014: 185).

***Paraphaenocladus impensus* subspecies *impensus* (Walker, 1856)**

Sites 7-11, 7-13, 7-18 (HCCIC # 449), +7-54. First record at Site 7-11 in June 1968 (Murray, 1972; Murray *et al.*, 2014: 185) and most recently at site 7-54 on 6 February 2016.

***Paraphaenocladus penerasus* Edwards, 1929**

Sites 7-13 (HCCIC # 453), 8-02. First record from Site 8-02 in May 1976 (Murray *et al.*, 2014: 186).

***Paratrachocladus rufiventris* (Meigen, 1830)**

Site 7-23. Recorded at this site only in July 1989 (Murray *et al.*, 2014: 188).

***Paratrissocladus excerptus* subspecies *excerptus* (Walker, 1856)**

Site 8-02 (HCCIC #464). Recorded at this site only in June 2006 (Murray *et al.*, 2014: 190).

***Psectrocladius (Allopsectrocladius) obivius* (Walker, 1856)**

Site 7-44. Recorded at this site only in September 1994 (Murray *et al.*, 2014: 192).

§ *Psectrocladius (A.) platypus* (Edwards, 1929)

Sites +7-51, +7-52. These are the first published records from County Meath from material collected on 6 August 2015 and 3 July 2016 from a bog pool on field outings of the Boyne Valley Natural History Field Club to Girly Bog, Fordestown.

***Psectrocladius (Psectrocladius) limbatellus* (Holmgren, 1869)**

Sites 7-17, 8-01. First record from Site 8-01 in April 1999 (Murray *et al.*, 2014: 197).

§ *Psectrocladius (P.) sordidellus* (Zetterstedt, 1838)

Site +7-54. This is the first published record from County Meath from material collected on 6 February 2016 during a field outing of the Boyne Valley Natural History Field Club at St Gorman's Pool, a thermal waterbody at Ballynakill, Enfield.

***Rheocricotopus (Psilocricotopus) atripes* (Kieffer, 1913)**

Site 7-23 (HCCIC #514). Record from July 1981 (Murray *et al.*, 2014: 208).

***Rheocricotopus (P.) chalybeatus* subspecies *chalybeatus* (Edwards, 1929)**

Sites 7-02, 7-09, 7-11, 7-21, 7-23, 7-24, 7-25, 7-37. First record from Site 7-11 in July 1968 (Murray, 1972; Murray *et al.*, 2014: 208).

§ *Rheocricotopus (P.) glabricollis* (Meigen, 1830)

Site +7-28. This is the first published record from County Meath. Specimens were collected on 28 June 2015 on a field outing of the Boyne Valley Natural History Field Club at the Bru na Boinne Heritage Centre, Newgrange. Other records from Ireland are from Counties Cork and Kerry in Hydrometric Areas 20 and 22 respectively (Murray *et al.*, 2014: 210).

***Rheocricotopus (Rheocricotopus) effusus* (Walker, 1856)**

Sites 7-21, 8-03. First record from Site 7-21 in August 1988 (Murray *et al.*, 2014: 210).

***Rheocricotopus (R.) fuscipes* (Kieffer, 1909)**

Sites 7-39, +7-48, 8-03 (HCCIC #522). First record from Site 8-03 in May 1974 (Murray *et al.*, 2014: 213). Most recently found at Site 7-48 in May 2015 (Murray, 2015b).

***Smittia aterrima* (Meigen, 1818)**

Sites 7-11, 7-15, 7-18, 8-01, 8-02 (HCCIC #527). First record at Site 7-11 in March 1968 (Murray, 1972; Murray *et al.*, 2014: 214).

§ *Smittia contingens* (Walker, 1856)

Site 7-54. This is the first published record of the species from County Meath. The specimen was collected on 6 February 2016 on a field outing of the Boyne Valley Natural History Field Club at St Gorman's Pool, a thermal waterbody at Ballynakill, Enfield.

***Smittia edwardsi* Goetghebuer, 1932**

Site 8-06. Recorded at this site only in March 1968 (Murray, 1972; Murray *et al.*, 2014: 214).

***Smittia leucopogon* (Meigen, 1804)**

Sites 7-18 (HCCIC #533), 8-01. First record at this site in May 1982 (Murray *et al.*, 2014: 215).

***Smittia pratorum* (Goetghebuer, 1927)**

Sites 7-16, 7-28, 8-01, 8-02. First record from Site 7-16 in May 1986 (Murray *et al.*, 2014: 215).

***Synorthocladius semivirens* (Kieffer, 1909)**

Sites 7-02, 7-21, 7-23, 7-26, 7-34, 7-35, 7-37, 8-05. First record from Site 7-37 in August 1988 (Murray *et al.*, 2014: 223).

***Thienemanniella clavicornis* (Kieffer, 1911)**

Site 7-11. Recorded at this site only in August 1968 (Murray, 1972; Murray *et al.*, 2014: 226).

***Thienemanniella vittata* (Edwards, 1924)**

Site 6-01. Recorded at this site only in July 1983 (Murray *et al.*, 2014: 227).

***Tvetenia calvescens* (Edwards, 1929)**

Sites 6-01, 7-01, 7-06, 7-09, 7-11, 7-15, 7-19, 7-21, 7-23, 7-23, 7-24, 7-25, 7-26, 7-27, 7-34, 7-35, 7-37, 7-39, 7-48, 8-03, 8-04, 8-05. First record from Site 7-06 in July 1981 (Murray *et al.*, 2014: 233).

***Tvetenia discoloripes* (Goetghebuer and Thienemann, 1936)**

Sites 6-01, 7-23, 7-25, 8-02. First record from Site 8-02 in May 1974 (Murray *et al.*, 2014: 235).

***Tvetenia verralli* (Edwards, 1929)**

Sites 6-01, 7-15, 7-19, 7-37. First record from Site 6-01 in July 1983 (Murray *et al.*, 2014: 238).

Subfamily CHIRONOMINAE

Tribe Chironomini

***Chironomus (Chironomus) alpestris* Goetghebuer, 1934**

Sites 7-17, 8-01. First record from Site 8-01 in April 1999 (Murray *et al.*, 2015: 10).

***Chironomus (C.) cingulatus* Meigen, 1830**

Sites 7-12, 7-17. First record from Site 7-12 in May 1982 (Murray *et al.*, 2015: 13).

§ *Chironomus (C.) commutatus* Keyl, 1960

Site +7-54. This is the first published record from County Meath from material collected at St Gorman's thermal pool, Enfield, on 23 April 2016.

***Chironomus (C.) longistylus* Goetghebuer, 1921**

Sites 7-12, 7-16 (HCCIC #591). First record at this site in October 2012 (Murray *et al.*, 2015: 14).

§ *Chironomus (C.) lugubris* Zetterstedt, 1850

Site +7-51. These are the first published records from County Meath on field outings of the Boyne Valley Natural History Field Club to Girley Bog on 30 August 2015 and 3 July 2016.

***Chironomus (C.) luridus* Strenzke, 1959**

Sites +7-45 and 8-01 (HCCIC #595) as the first record from Meath in March 1986 (Murray *et al.*, 2015: 15). The previously unpublished record from Site 7-45 derives from collections taken on 9 June 2016.

***Chironomus (C.) nudatarsis* Keyl, 1961**

Site 7-50. First record at this site in May 2015 (Murray, 2015b; Murray *et al.*, 2015: 15).

***Chironomus (C.) piger* Strenzke, 1959**

Site 8-01. First record at this site in October 2012 (Murray *et al.*, 2015: 17).

***Chironomus (C.) pilicornis* (Fabricius, 1787)**

Site 7-38. First record at this site in March 1968 (Murray, 1972).

§ *Chironomus (Chironomus) pseudothummi* Strenzke, 1959

Site +7.51, +7-52. These are the first published records from County Meath from collections at Girley Bog on a field outing of the Boyne Valley Natural History Field Club on 3 July 2016.

***Chironomus (C.) riparius* Meigen, 1804**

Sites 7-15, 7-17, 7-23. First record at Site 7-15 in July 1988 (Murray *et al.*, 2015: 20).

***Cryptochironomus rostratus* Kieffer, 1921**

Sites 7-23, 7-27, 7-35. First record at Site 7-17 in July 1989 (Murray *et al.*, 2015: 29).

***Demicryptochironomus (Demicryptochironomus) vulneratus* (Zetterstedt, 1838)**

Sites 7-09, 7-15, 7-25, 7-26. First record at Site 7-09 in July 1981 (Murray *et al.*, 2015: 35).

***Dicrotendipes notatus* (Meigen, 1818)**

Sites 7-15, 7-17 (HCCIC #660). First record at Site 7-17 in June 2000 (Murray *et al.*, 2015: 38).

***Einfeldia pagana* (Meigen, 1838)**

Site 7-11. Record from May 1974 (Murray *et al.*, 2015: 42).

§ *Glyptotendipes (Glyptotendipes) barbipes* Staeger, 1839

Site +7-51. This is the first published record from Meath from Girley Bog, 3 July 2016. A record also exists from HA 7 in County Cavan (Murray *et al.*, 2015: 49).

***Harnischia fuscimanus* Kieffer, 1921**

Only known from County Meath

Site 7-28. Recorded in June 2015, this the only record to-date of the species in Ireland (Murray, 2015d; Murray *et al.*, 2015: 58)

***Microtendipes chloris* (Meigen, 1818)**

Sites 7-28, 7-49, 8-02. First record at Site 8-02 in May 2006 (Murray *et al.*, 2015: 62).

***Microtendipes pedellus* (De Geer, 1776)**

Sites 7-11, 7-15, 7-23, 7-24, 7-25, 8-03. First record at Site 7-11 in July 1976 (Murray *et al.*, 2015: 64).

***Microtendipes tarsalis* (Walker, 1856)**

Site 7-11. Record from May 1968 (Murray, 1972; Murray *et al.*, 2015: 66).

***Parachironomus gracilior* (Kieffer, 1918)**

Sites 7-26, 7-27. First record at Site 7-26 in July 1989 (Murray *et al.*, 2015: 74).

***Parachironomus vitiosus* (Goetghebuer, 1921)**

Site 6-01. Record from July 1983 as *Parachironomus biannulatus* (Murray, 1996; Murray *et al.*, 2015: 78).

§ *Paracladopelma camptolabis* (Kieffer, 1913)

Site +7-28. Previously unpublished, this is the only record of the species from County Meath collected on 23 April 2016. *P. camptolabis* is, however, widely distributed elsewhere in Ireland

(Murray *et al.*, 2015: 80).

***Paratendipes albimanus* (Meigen, 1818)**

Sites 7-09, 7-11, 7-15, 7-21, 7-23, 7-34, 7-35, 7-37, 8-02, 8-04. First record at Site 7-09 in July 1981 (Murray *et al.*, 2015: 85).

***Phaenopsectra flavipes* (Meigen, 1818)**

Sites 7-11, 7-12, 7-14, 7-23. Originally reported from County Meath as *Lenzia flavipes* (Meigen) from Site 7-11 in August 1968 (Murray, 1972; Murray *et al.*, 2015: 88).

***Polypedilum (Polypedilum) nubeculosum* (Meigen, 1804)**

Sites 7-06, 7-09, 7-15, 7-23, 7-24, 7-25, 7-27. First record at Site 7-06 in July 1981 (Murray *et al.*, 2015: 96).

***Polypedilum (P.) pedestre* (Meigen, 1830)**

Sites 7-11, 7-15. First record at Site 7-11 in June 1974 (Murray *et al.*, 2015: 97).

***Polypedilum (Tripodura) bicrenatum* (Kieffer, 1921)**

Sites 7-15, 7-21. First record at Site 7-21 in August 1988 (Murray *et al.*, 2015: 98).

***Polypedilum (T.) pullum* (Zetterstedt, 1838)**

Sites 7-11, 7-23. First record at Site 7-15 in August 1988 (Murray *et al.*, 2015: 99).

***Polypedilum (T.) quadriguttatum* Kieffer, 1921 Only known from County Meath**

Site 7-11. Originally reported from this site in August 1968 (Murray, 1972), this remains the sole Irish record of the species in Ireland (Murray *et al.*, 2015: 100).

***Polypedilum (T.) scalaenum* (Schränk, 1803)**

Sites 7-11, 7-21, 7-35. First record at Site 7-11 in May 1968 (Murray, 1972).

***Polypedilum (Uresipedilum) convictum* (Walker, 1856)**

Sites 6-01, 7-11, 7-15, 7-19, 7-23, 7-24, 7-34, 7-37, 7-48. First record at Site 6-01 in July 1983 (Murray *et al.*, 2015: 102).

***Polypedilum (U.) cultellatum* Goetghebuer, 1931**

Sites 7-11 (HCCIC #795), 7-23, 7-26, 7-27, 7-34. First record at Site 7-11 in August 1981 (Murray *et al.*, 2015: 103).

***Stenochironomus (Stenochironomus) gibbus* (Fabricius, 1794)**

Site 7-16 (HCCIC #801). Recorded at this site only in June 1980 (Murray *et al.*, 2015: 104).

***Stictochironomus maculipennis* (Meigen, 1818)**

Site 7-14. Recorded at this site only in May 1982 (Murray *et al.*, 2015: 105).

***Stictochironomus sticticus* (Fabricius, 1781)**

Site 7-09. Recorded at this site only in July 1981 (Murray *et al.*, 2015: 107).

***Xenochironomus xenolabis* (Kieffer, 1916)**

Sites 7-15, 7-21, 7-23, 7-24, 7-25. First record at Site 7-15 in June 1980 (Murray *et al.*, 2015: 109).

Tribe Tanytarsini

***Cladotanytarsus nigrovittatus* (Goetghebuer, 1922)**

Site 7-14. Record from September 1983 (Murray *et al.*, 2015: 119).

***Cladotanytarsus vanderwulpi* (Edwards, 1929)**

Sites 6-01, 7-11, 7-26, 7-27, 7-34, 7-35, 7-37, 7-42 (HCCIC #832). First record in June 1968 from Site 7-11 (Murray, 1972; Murray *et al.*, 2015: 121).

***Micropsectra apposita* (Walker, 1856)**

Sites 7-29 (HCCIC #835), 7-54, 8-02, 8-03. First record at Site 8-02 in April 1973 (Murray *et al.*, 2015: 123).

***Micropsectra atrofasciata* (Kieffer, 1911)**

Sites 6-01, 7-12, 7-15 (HCCIC #839), 7-23, 7-24, 7-25, 7-26, 7-27, 7-38, 7-42, 8-01, 8-02. First record in March 1968 from Site 7-38 (Murray, 1972; Murray *et al.*, 2015: 126).

***Micropsectra attenuata* Reiss, 1969**

Site 7-44. Record from March 1996 (Murray *et al.*, 2015: 127).

***Micropsectra junci* (Meigen, 1818)**

Sites 7-11, 8-01, 8-02. First reported under the synonym *Micropsectra brunipes* (Zetterstedt) from Site 7-11 in April 1968 (Murray, 1972; Murray *et al.*, 2015: 128).

***Micropsectra lindrothi* Goetghebuer, 1931**

Sites 7-17 (HCCIC #856), 7-18, 7-44, +7-45, 7-46, 7-54, 8-02, 8-07. First record at Site 8-02 in October 1981 (Murray *et al.*, 2015: 129). New record on 10 June 2016 at Site 7-45.

***Micropsectra logani* (Johannsen, 1928)**

Site 8-02. Record from in March 1996 (Murray *et al.*, 2015: 130).

***Micropsectra notescens* (Walker, 1856)**

Sites 7-12, 8-01. First record at Site 7-12 in May 1982 (Murray *et al.*, 2015: 130).

***Micropsectra pallidula* (Meigen, 1830)**

Sites 7-06, 7-15, 7-18, 7-23, 7-25, 8-01, 8-02 (HCCIC #843). First record at Site 7-06 July 1981 (Murray *et al.*, 2015: 133).

***Micropsectra roseiventris* (Kieffer, 1909)**

Sites 7-11, 7-28, 8-01. First recorded as *Micropsectra fusca* (Meigen) at Site 7-11 in March 1968 (Murray, 1972; Murray *et al.*, 2015: 135).

***Paratanytarsus austriacus* (Kieffer, 1924)**

Sites 7-12, 8-01. First record at Site 7-12 in May 1982 (Murray *et al.*, 2015: 136).

***Paratanytarsus bituberculatus* (Edwards, 1929)**

Site 7-44. Record from May 1996 (Murray *et al.*, 2015: 136).

***Paratanytarsus dissimilis* (Johannsen, 1905)**

Sites 7-34, 7-48. First record at Site 7-34 in August 1988 (Murray *et al.*, 2015: 138).

***Paratanytarsus inopertus* (Walker, 1856)**

Sites 7-11 (HCCIC #897), 7-14. First record in May 1968 at Site 7-11 (Murray, 1972; Murray *et al.*, 2015: 141).

***Rheotanytarsus curtistylus* (Goetghebuer, 1921)**

Sites 7-06, 7-09, 7-28, 7-48. First record at Site 7-06 in July 1981 (Murray *et al.*, 2015: 146).

***Rheotanytarsus pentapoda* (Kieffer, 1909)**

Sites 7-23, 7-24, 7-25, 7-26, 7-27, 7-28. First record at Site 7-23 in July 1981 (Murray *et al.*, 2015: 151).

***Rheotanytarsus reissi* Lehmann, 1970**

Only known from County Meath

Site 7-28. Collected on 23 May 2015, this is the only record of the species from Ireland (Murray, 2015b; Murray *et al.*, 2015: 152).

***Tanytarsus bathophilus* Kieffer, 1911**

Site 7-15. Record from July 1988 (Murray *et al.*, 2015: 162).

***Tanytarsus brundini* Lindeberg, 1963**

Sites 7-06, 7-09, 7-11, 7-15, 7-19, 7-21, 7-23, 7-24, 7-34, 7-35, 7-37. First record from Site 7-15 in July 1981 (Murray *et al.*, 2015: 165).

§ *Tanytarsus buchonius* Reiss and Fittkau, 1971

Sites +7-51, +7-52. These are the first published records from County Meath at Girley Bog on 3 July 2016 during a field outing of the Boyne Valley Natural History Field Club.

***Tanytarsus curticornis* Kieffer, 1911**

Site 7-48. Record from May 2015 (Murray, 2015a; Murray *et al.*, 2015: 166).

***Tanytarsus ejuncidus* (Walker, 1856)**

Sites 7-11, 7-15, 7-21. First record from Site 7-11 in May 1982 (Murray *et al.*, 2015: 168).

***Tanytarsus eminulus* (Walker, 1856)**

Sites 6-01, 7-11, 7-12, 7-23, 7-34, 7-35. First record from Site 7-11 in May 1968 (Murray, 1972; Murray *et al.*, 2015: 168).

***Tanytarsus heusdensis* Goetghebuer, 1923**

Sites 6-01, 7-11, 7-19, 7-23, 7-34, 7-48, 8-02 (HCCIC #945). First record from Site 6-01 (Murray *et al.*, 2015: 174).

***Tanytarsus medius* Reiss and Fittkau, 1971**

Sites 7-15, 7-28, 7-35, 7-37, 7-48. First record from Site 7-58 in July 1988 (Murray *et al.*, 2015: 177).

***Tanytarsus palettaris* Vernaux, 1969**

Site 8-02. Record from June 2006 (Murray *et al.*, 2015: 178).

***Tanytarsus pallidicornis* (Walker, 1856)**

Sites 6-01, 7-12, 7-15 (HCCIC #965), 7-24. First record from Site 7-15 in September 1981

(Murray *et al.*, 2015: 179).

***Tanytarsus striatulus* Lindeberg, 1976**

Sites 7-12, 7-24. First record from Site 7-12 in May 1982 (Murray *et al.*, 2015: 181).

***Tanytarsus usmaensis* Pagast, 1931**

Site 7-21. Record from August 1988 (Murray *et al.*, 2015: 182).

***Virgatanytarsus arduennensis* (Goetghebuer, 1922)**

Sites 7-12, 7-15, 7-19, 7-24, 7-25, 7-48. First record at Site 7-11 in June 1968 as *Tanytarsus arduennensis* Goetghebuer (Murray, 1972).

***Virgatanytarsus triangularis* (Goetghebuer, 1928)**

Site 8-04. Record from June 2006 (Murray *et al.*, 2015: 184).

Comments

Species in eight subfamilies are known from Ireland (Table 2). There are no records from County Meath, or from Hydrometric Areas 6, 7 and 8 (HA6-8) of the subfamilies Buchonomyiinae, Podonominae and Telmatogetoninae.

A total of 546 species-level chironomid taxa are documented from Ireland of which 259 are known to occur in HA6-8 while in the County Meath sector of these HAs, 196 species are now documented. Altogether, 66 species of Tanypodinae are recognized in Ireland, 44 in HA6-8 and 35 in Meath. Four species of Diamesinae and one of Prodiamesinae are recorded in Meath (and HA6-8) out of 11 and 3, respectively, known from Ireland. Some 226 species of Orthocladiinae are known from Ireland, 100 in HA6-8 only 13 of which have not been documented in Meath where 87 species are currently on record. In the subfamily Chironominae there are 234 species known in Ireland, 110 in HA6-8 and 69 in County Meath. One species of Pseudochironomini (*Pseudochironomus prasinatus*) is known from Ireland and, while it has been found in HA7 at Lough Ramor (Murray *et al.*, 2015), it is not included in the present listing since this record is in County Cavan.

The majority of species reported here are also known to occur elsewhere in Ireland but five, viz. *Zavrelimyia* (*Zavrelimyia*) *nubila*, *Limnophyes platystylus*, *Harnischia fuscimanus*, *Polypedilum* (*Tripodura*) *quadriguttatum* and *Rheotanytarsus reissi*, are thus far only known from County Meath. Of these, *L. platystylus* was described as a new species by Murray (2007) while *H. fuscimanus* and *R. reissi* are recent additions to the Irish faunal checklist from collections made on field outings of the Boyne Valley Natural History Field Club in 2015 (Murray, 2015b, c). Records of twelve species are new for County Meath and previously unpublished: *Macropelopia* (*Macropelopia*) *adaucta*, *Limnophyes gurgicola*, *Psectrocladius* (*Allopsectrocladius*) *platypus*, *Psectrocladius* (*Psectrocladius*) *sordidellus*, *Rheocricotopus* (*Psilocricotopus*) *glabricollis*, *Smittia contingens*, *Chironomus* (*Chironomus*) *commutatus*,

Chironomus (C.) *pseudothummi*, *Chironomus* (C.) *lugubris*, *Glyptotendipes* (*Glyptotendipes*) *barbipes*, *Paracladopelma camptolabis* and *Tanytarsus buchonius*.

Faunal checklists are constantly subject to change and while it is unlikely that all known Irish species of Chironomidae will be found in County Meath, it is to be expected that further collection effort will add to the inventory. Since 253 species are known to occur in all of HAs 6-8 and as Meath has 57 species less, with a known listing of 196, it is likely that a number those species currently known in sections of Hydrometric Areas lying outside the county are also liable to be found in County Meath.

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TABLE 1. Sites in Hydrometric Areas 6, 7 and 8 in County Meath from which records of Chironomidae are reported with details of site number, six-figure grid reference, townland/location and collection habitat.

Abbreviations: HA = Hydrometric Area; R. = River.

Site	HA	Grid Reference	Townland	Habitat
6-01	6	N910894	Drumconrath	R. Dee
7-01	7	N590389	Castlejordan	R. Mongagh
7-02	7	N601448	Kinnegad	R. Kinnegad
7-03	7	N623460	Kilwarden	R. Kinnegad
7-04	7	N658449	Clonard	R. Kinnegad
7-05	7	N638402	Ballyboggan	R. Boyne
7-06	7	N733527	Scarrif Bridge	R. Boyne
7-07	7	N805566	Trim Castle, Trim	R. Boyne
7-08	7	N800570	New Bridge, Trim	R. Boyne
7-09	7	N815571	Newtown, Trim	R. Boyne
7-10	7	N860598	Bective Bridge	R. Boyne
7-11	7	N894625	Bellinter Bridge	R. Boyne
7-12	7	N895628	Ardsallagh, opposite R. Skane	R. Boyne
7-13	7	N896632	Ardsallagh, near R. Boyne	Pond
7-14	7	N897630	Ardsallagh, derelict eel weir	R. Boyne
7-15	7	N897635	Ardsallagh, at St Bridget's Well	R. Boyne
7-16	7	N894640	Ardsallagh, "Magazine weir"	R. Boyne
7-17	7	N896635	Ardsallagh, field	Water trough
7-18	7	N893639	Ardsallagh, rere of garden	Marsh
7-19	7	N884657	Kilcarn Bridge, Navan	R. Boyne
7-20	7	N874674	Railway bridge, Navan	R. Boyne
7-21	7	N873679	New Bridge, Navan	R. Boyne
7-22	7	N884689	Blackcastle Weir, Navan	R. Boyne
7-23	7	N917713	Stackallen Bridge	R. Boyne
7-24	7	N965737	Slane Bridge, Slane	R. Boyne
7-25	7	N995720	Knowth Weir	R. Boyne
7-26	7	O045761	Oldbridge	R. Boyne
7-27	7	O062753	Oldbridge, downstream	R. Boyne
7-28	7	O023727	Newgrange, Brú na Bóinne	R. Boyne
7-29	7	N659548	Ballivor	Bog pool
7-30	7	N684572	Rathkenna	R. Stonyford
7-31	7	N685779	Carnaross	R. Blackwater
7-32	7	N762759	Sedenrath	R. Blackwater

TABLE 1 (continued).

Site	HA	Grid Reference	Townland	Habitat
7-33	7	N715775	Clavens Bridge	R. Blackwater
7-34	7	N793741	Bloomsbury, Oristown	R. Blackwater
7-35	7	N819723	Donaghpatrick	R. Blackwater
7-36	7	N831715	Tatestown	R. Blackwater
7-37	7	N871681	Poolboy, Navan	R. Blackwater
7-38	7	N752763	Headford Estate, Kells	Pond
7-39	7	N835710	Randalstown, Navan	Yellow R.
7-40	7	N841715	Randalstown, adjacent tailings	Yellow R.
7-41	7	N842718	Upstream of tailings, Gibstown	Yellow R.
7-42	7	N845712	Tailings Interceptor, Randalstown	Ditch
7-43	7	N857717	Tailings Interceptor, Randalstown	Ditch
7-44	7	N845714	Tailings Stage 2, Randalstown	Pond
7-45	7	N892595	Riverstown, Kilmessan	Rain-filled milk churn
7-46	7	N853668	Mullaghboy, Navan	Rain water in motor tyre
7-47	7	N890626	Ballinter	Rain-filled basin
7-48	7	N901626	Dalgan Park, Navan	R. Skane
7-49	7	N898637	Dalgan Park, Navan	Woodland Stream
7-50	7	N900634	Dalgan Park, Navan,	Water trough
7-51	7	N701695	Girley Bog, Fordestown	Bog pool
7-52	7	N706695	Girley Bog, Drewstown	Bog pool
7-53	7	N710688	Girley Hall, Fordestown	Rain water barrel
7-54	7	N740442	St Gorman's, Ballynakill, Enfield	Thermal pool
8-01	8	O040594	Meadesbrook, Kilmoon	Rain filled vessels
8-02	8	O038594	Meadesbrook, Kilmoon	Tributary to R. Nanny
8-03	8	O035655	Bridge upstream of Duleek	R. Nanny

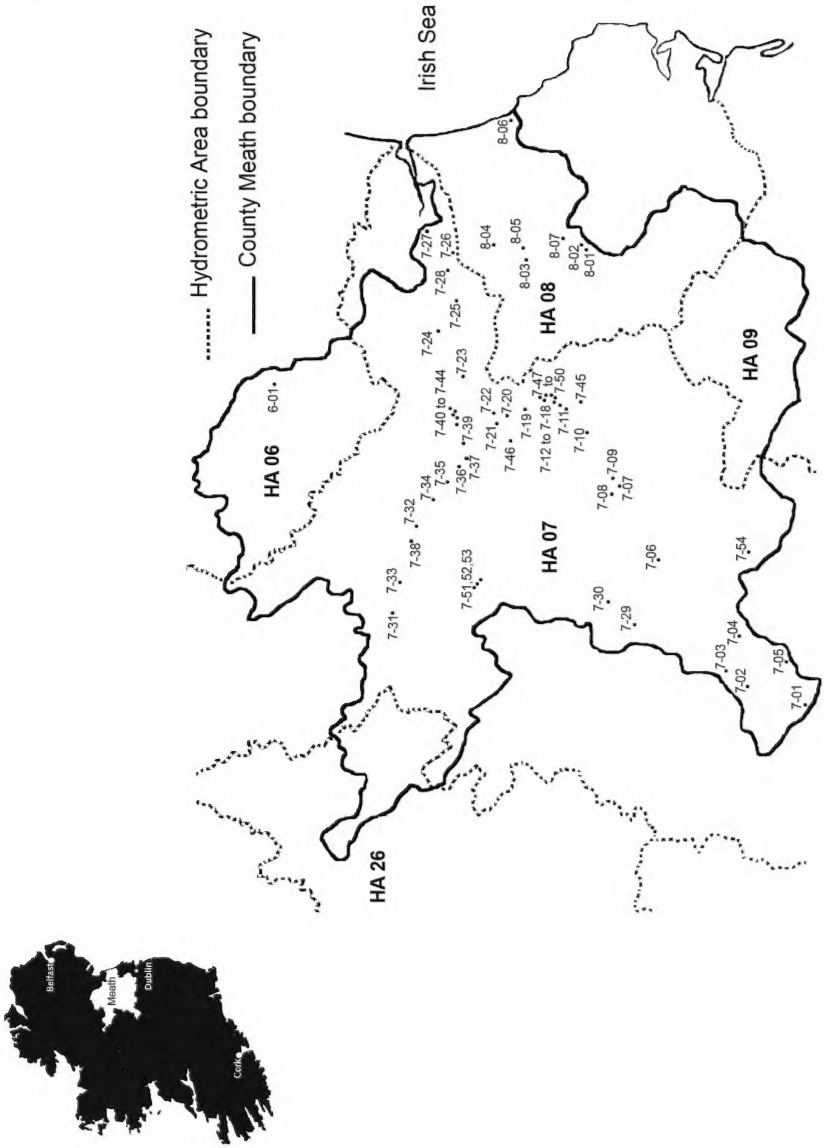
TABLE 1 (continued).

Site	HA	Grid Reference	Townland	Habitat
8-04	8	O050683	Bridge at Duleek	R. Nanny
8-05	8	O044654	Boolies, Duleek	Tributary to R. Nanny
8-06	8	O180661	Gormanstown	R. Delvin
8-07	8	O038612	Puddenhill Activity Centre, Moorepark	Rain filled vessels

TABLE 2. Total number of species-level taxa in the eight chironomid subfamilies currently known from Ireland, Hydrometric Areas 6-8 and County Meath.

	Ireland	HA 6-8	County Meath
Buchonomyiinae	1	0	0
Podonominae	2	0	0
Tanypodinae	66	44	35
Diamesinae	11	4	4
Prodiamesinae	3	1	1
Telmatogetoninae	3	0	0
Orthocladiinae	226	100	87
Chironominae	(234)	(110)	(69)
Tribe Chironomini	140	64	37
Tribe Tanytarsini	93	45	32
Tribe Pseudochironomini	1	1	0
TOTAL	546	259	196

FIGURE 1. Outline map of County Meath depicting approximate locations of stations in Hydrometric Areas cited in Table 1 and the text. The county is also shown on an Irish map.



A REVIEW OF THE IRISH PLATYGASTRIDS (HYMENOPTERA: PLATYGASTROIDEA, PLATYGASTRIDAE) INCLUDING THEIR KNOWN DISTRIBUTIONS

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Abstract

The Irish platygastroid fauna is reviewed. A total of 139 species are now known from the island. Published records are summarised and new records reported. Information is also provided on flight-periods, ecology and distributions.

Key words: Hymenoptera, Platygastriidae, Platygastriinae, Sceliotrachelinae, Ireland, review, flight-periods, ecology, distributions.

Introduction

The Irish scelionids were reviewed by O'Connor and Notton (2013). They were originally included in their own family (Scelionidae) but were found not to be defined by any unique synapomorphy, with the family being possibly paraphyletic (Austin, Johnson and Dowton, 2005; Murphy *et al.*, 2007). As a result, they were subsequently included in the Platygastriidae by many workers. However in line with some other recent research, Buhl, Broad and Notton (2016) have now again recognised the Scelionidae as a separate family while acknowledging that some basal platygastroid groups previously classified as Scelionidae should be recognised at the family level. As a result, the Irish species in the Platygastriidae (*sensu stricto*) and belonging to the subfamilies Platygastriinae and Sceliotrachelinae, are reviewed in the present paper. These are parasitoid wasps, especially of gall midges. They are mostly very small (1-2mm), black, and weakly shining with elbowed antennae that have a flagellum (at most 8 segments; sometimes fewer, especially in the subfamily Sceliotrachelinae) (Figs 1- 7). The wings of platygastroids most often lack venation, though they may have fringes of setae.

Previous research on the Irish Platygastriidae by Walker (1835, 1838, 1851), Kieffer (1926), Nixon (1937), Masner (1965), Day (1971), Vlug and Graham (1984), Vlug (1995) and O'Connor (2003) was reviewed by O'Connor, Nash, Notton and Fergusson (2004). The most recent Irish checklist was provided by O'Connor, Nash and Broad (2009). In the same year,

Buhl and Notton (2009) published a revised catalogue of the Platygastriidae of the British Isles and it contained some Irish records. Buhl and O'Connor (2010a) added a further eleven species with Buhl and O'Connor (2010b) providing further distributional records along with corrections and additions to the Irish list. Buhl and O'Connor (2011a, b, 2012a, b, c, 2013) reported additional discoveries including a species new to science. The nomenclature here follows Buhl, Broad and Notton (2016) who overlooked several species recorded from Ireland. Synonyms which occur in the literature concerning Irish platygastriids are given.

The present paper reviews what is known about the Irish platygastriids with particular emphasis on their known distributions. Some unpublished records are presented and this material was determined by PB. Irish four figure grid references are given in the text. For the maps, these 1km grid references have been plotted as 10km squares on longitude and latitude using DMAP. The grid references are accurate for specimens collected by the senior author. However, other ones are tentative (given in square brackets) as precise localities were often not given by some collectors but, they do indicate the general area in which the species was taken. The Irish counties are shown (Fig. 8). No localities are known for a few species, except for the island of Ireland and in these instances, maps are not provided. Available data on hosts are included. The months when specimens were collected are also presented under the flight-period. A representative collection of Irish platygastriids has been deposited in the National Museum of Ireland – Natural History, Dublin, Ireland, along with a large number of specimens identified to genus. Their determination has to await the clarification of the identity of many species described by Francis Walker.

The following abbreviations have been used in the text: JPOC – J. P. O'Connor, MAOC – M. A. O'Connor; PB – P. Buhl; sp. – species (singular); spp. – species (plural).

List of the Platygastriidae of Ireland

PLATYGASTRINAE

1. *Acerotella boter* (Walker, 1838) (Fig. 9)

O'Connor et al., 2004 (**DOWN**: Holywood near Belfast (J4079)). *Buhl and Notton*, 2009 (**IRELAND**). *Buhl and O'Connor*, 2010b (**DOWN**: Cultra (J4180)).

New record. WEXFORD: Baginbun (S8003), ♂ 23 May 2012, swept from vegetation on the beach, JPOC.

Flight period: May-June and September.

2. *Acerotella humilis* (Kieffer, 1913) (Fig. 10)

Buhl and O'Connor, 2012b (**WEXFORD**: Ballyteige (S9504), swept from vegetation on the

sand-dunes). *Buhl and O'Connor, 2013* (**CARLOW**: Saint Mullins (S7238), River Barrow, swept from river-bank vegetation).

Flight period: May and August.

In Denmark, the species has been reared from sneezewort *Achillea ptarmica* with *Rhopalomyia palearum* (Kieffer) and other gall midges (Diptera: Cecidomyiidae) (*Ozirhincus millefolii* (Wachtl), a *Contarinia* sp. and a predacious *Lestodiplosis* sp.) (Buhl and Jorgensen, 2010).

3. *Amblyaspis belus* (Walker, 1835) (Fig. 11)

O'Connor et al., 2004 (**DOWN**: Holywood (J4079)). *Buhl and Notton, 2009* (**IRELAND**).

4. *Amblyaspis crates* (Walker, 1835) (Fig. 12)

Buhl and O'Connor, 2011b (**WEXFORD**: Stoneyford near Broadway (T1009), swept from vegetation beside a stream). *Buhl and O'Connor, 2012c* (**WEXFORD**: Ballyteige (S9504), swept from vegetation on the sand-dunes).

Flight period: August.

5. *Amblyaspis nereus* (Walker, 1835) (Fig. 13)

Buhl and O'Connor, 2009b (**WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland).

Flight period: July.

The hosts are associated with orache *Atriplex* (Vlug, 1995).

6. *Amblyaspis otreus* (Walker, 1835) (Fig. 14)

O'Connor et al., 2004 (**IRELAND**). *Buhl and O'Connor, 2008* (**WICKLOW**: Calary Lower (O2311), swept in a marshy area). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: September.

7. *Amblyaspis prorsa* (Walker, 1835) (Fig. 15)

Buhl and O'Connor, 2010a (**WEXFORD**: Stoneyford near Broadway (T1009), swept from vegetation beside a stream).

Flight period: August.

8. *Amblyaspis roboris* (Haliday, 1835) (Fig. 16)

O'Connor et al., 2004 (**KILDARE**: Castletown (N9734), swept in mixed wood. **TYRONE**: Moy (H8356), mixed woodland. **WESTMEATH**: Pakenham Hall (N4469), mixed woodland).

Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (DUBLIN: Castleknock (O0837), Malaise trap in a suburban garden. **KILKENNY:** Woodstock House, Inistioge (S6336), swept from mixed woodland. **TYRONE:** Moy (H8356), mixed woodland. **WATERFORD:** Belle Lake (S6605), swept from lake-side vegetation; Woodstown (S6904), swept from vegetation in a large marsh. **WEXFORD:** Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Ferrycarrig (T0023), swept in marsh with birch *Betula* and hazel *Corylus*; J. F. Kennedy Park (S7319), mixed woodland; Oaklands Wood (S7125), swept in mixed woodland; Stoneyford near Broadway (T1009), swept from vegetation beside a stream. **WICKLOW:** Glen of the Downs (O2611), swept from mixed woodland). *Buhl and O'Connor, 2012c (CAVAN:* Dun na Rí (N7997), swept in mixed woodland).

New record. KERRY: Killarney (V9796), beside the Cloghereen stream, ♂ 10 September 1981, JPOC.

Flight period: March-September.

9. *Amblyaspis scelionoides* (Haliday, 1835) (Fig. 17)

Synonymy *Platygaster furius* Walker, 1835

O'Connor et al., 2004 (CARLOW: Cloughristick Wood (S7069), mixed woodland. **CAVAN:** Virginia (N5987), mixed woodland. **CORK:** Glengarriff (V9256), swept in oak *Quercus* woodland. **KILKENNY:** Clonassy Wood (S5622), mixed woodland). *Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (KERRY:* Killarney (V9786), beside the Cloghereen stream. **WEXFORD:** Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Stoneyford near Broadway (T1009), Malaise trap and swept from vegetation beside a stream. **WICKLOW:** Coolattin Wood, Tomnafinnoge (T0269), oak *Quercus* woodland). *Buhl and O'Connor, 2012c (WICKLOW:* Powerscourt (O2012), swept in mixed woodland).

New records. CARLOW: Bahana Woods (S7239), ♀ 14 June 1991, swept in mixed woodland, JPOC and MAOC. **KILKENNY:** Woodstock House, Inistioge (S6336), 2♂♂ 2 August 2008, swept in mixed woodland, JPOC. **WEXFORD:** Slieve Coiltia (S7221), ♀ 24 May 2012, swept from vegetation near the 270m summit, JPOC.

Flight period: May-October.

10. *Amblyaspis tritici* (Walker, 1835) (Fig. 18)

O'Connor et al., 2004 (CAVAN: Virginia (N5987), mixed woodland. **DUBLIN:** Malahide Castle (O2253), mixed woodland. **WATERFORD:** Portlaw (S4415), mixed woodland). *Buhl*

and Notton, 2009 (**IRELAND**). Buhl and O'Connor, 2010b (**WICKLOW**: Coolattin Wood, Tomnafinnoge (T0269), oak *Quercus* woodland).

New record. **CAVAN**: Lough Sheelin (N4686), Woodlawn, ♂ 12 September 1991, swept from lake-side vegetation, JPOC.

Flight period: July and September-October.

The hosts are associated with grasses Gramineae and willow *Salix* (Vlug, 1995).

11. *Anopedias lacustris* Kieffer, 1926

O'Connor et al., 2004 (**IRELAND**). Buhl and Notton, 2009 (**IRELAND**).

The species is associated with sedges *Carex* (Vlug, 1995).

12. *Ceratacis cochleata* (Walker, 1835) (Fig. 19)

Synonymy *Platygaster filicornis* Haliday, 1835

O'Connor et al., 2004 as *Platygaster filicornis* (**DOWN**: Holywood (J4079)). Buhl and O'Connor, 2008 (**KILKENNY**: Woodstock House, Inistioge (S6336), mixed woodland.

WEXFORD: Fethard (S7806), swept from vegetation beside the river). Buhl and Notton, 2009 (**IRELAND**). Buhl and O'Connor, 2010b (**WATERFORD**: Ballin Lough (S4403), swept from lake-side vegetation).

Flight period: June-July.

13. *Ceratacis flavipes* Thomson, 1859 (Fig. 20)

Buhl and O'Connor, 2009b (**CLARE**: Lough Bunny (R3696), swept from limestone pavement beside the lake).

Flight period: May.

14. *Ceratacis laricis* (Haliday, 1835) (Fig. 21)

O'Connor et al., 2004 as *Platygaster* (**IRELAND**). Buhl and Notton, 2009 (**KILDARE**: Royal Canal [Collinstown House (N9836)]. **SLIGO**: Bunduff (G7155)).

Flight period: July-August

15. *Euxestonotus clavicornis* Buhl, 1995 (Fig. 22)

Buhl and O'Connor, 2009b (**WEXFORD**: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill).

Flight period: August.

The Irish record was overlooked by Buhl, Broad and Notton (2016).

16. *Euxestonotus error* (Fitch, 1861) (Fig. 23)

Buhl and O'Connor, 2008 (**KILKENNY**: Woodstock House, Inistioge (S6336), mixed woodland). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**CORK**: Glengarriff (V9157), swept in the oak *Quercus* woodland. **WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland).

Flight period: July.

A parasitoid of the gall midges (Diptera: Cecidomyiidae) *Sitodiplosis mosellana* (Géhin) on wheat *Triticum vulgare* and *Perrisia leguminicola*/*Rhabdophaga* on willows *Salix* (Vlug, 1995).

17. *Euxestonotus hasselbalchi* Buhl, 1995 (Fig. 24)

Buhl and O'Connor, 2008 (**CORK**: Glengarriff (V9057), swept in oak *Quercus* woodland). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**WICKLOW**: Powerscourt (O2012), swept from vegetation beside the waterfall).

Flight period: June-July.

18. *Inostemma boscii* (Jurine, 1807) (Fig. 25)

Buhl and O'Connor, 2009a (**CLARE**: Fanore (M1308), swept from sand-dunes). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden).

Flight period: May and August-September.

A parasitoid of a wide range of gall midges (Diptera: Cecidomyiidae) including *Contarinia pisi* (Winnertz) on pea *Pisum*, *Dasyneura brassicae* Winnertz on cabbage *Brassica* and *Dasyneura pyri* Bouché on pear *Pyrus* (Vlug, 1995).

19. *Inostemma curtum* Szelényi, 1938 (Fig. 26)

O'Connor et al., 2004 (**WEXFORD**: Nethertown (T1204), swept from willows *Salix* in a marsh). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: June.

20. *Inostemma favo* Walker, 1838 (Fig. 27)

O'Connor et al., 2004 (**DOWN**: Holywood near Belfast (J4079)). *Buhl and Notton, 2009* (**IRELAND**).

21. *Inostemma frivaldszkyi* Szelényi, 1938 (Fig. 28)

Buhl and O'Connor, 2011b (**CLARE**: Burren, Corker Pass (M3010), swept from vegetation on limestone).

Flight period: May.

22. *Inostemma hispo* Walker, 1838 (Fig. 29)

Walker, 1838 (**DOWN**: Holywood near Belfast (J4079)). O'Connor *et al.*, 2004 (These authors considered *I. hispo* to be a nomen dubium). Buhl and Notton, 2009 (**IRELAND**).

23. *Inostemma hyperici* Debauché, 1947

O'Connor *et al.*, 2004 (**IRELAND**). Buhl and Notton, 2009 (**IRELAND**).

24. *Inostemma melicerta* Walker, 1835 (Fig. 30)

Buhl and O'Connor, 2009a (**CLARE**: Burren, near Corker Pass (M3010), swept from vegetation on limestone). Buhl and Notton, 2009 (**IRELAND**).

Flight period: May.

A parasitoid of the gall midges (Diptera: Cecidomyiidae) *Contarinia floriperda* Rübsaamen in the flowers of mountain ash *Sorbus aucuparia* and *Contarinia hypochoeridis* (Rübsaamen) in the flowers of catsear *Hypochoeris radicata*

25. *Inostemma spinulosum* Kieffer, 1916 (Fig. 31)

O'Connor *et al.*, 2004 (**CARLOW**: Saint Mullins (S7238), River Barrow, swept from river-bank vegetation. **KILKENNY**: Woodstock House, Inistioge (S6336) [mistakenly given as County Waterford in O'Connor *et al.* (2004)], mixed woodland. **WATERFORD**: Ballin Lough (S4403), lakeside vegetation; Passage East (S6811), swept from vegetation beside a hill-top path. **WEXFORD**: Curracloe (T1127), swept from an alder *Alnus* marsh. **WICKLOW**: Mount Usher, Ashford (T2796), ornamental gardens). Buhl and Notton, 2009 (**IRELAND**). Buhl and O'Connor, 2012c (**WEXFORD**: Slieve Coiltia (S7221), swept from vegetation near the 270m summit).

Flight period: May-July.

A parasitoid of the gall midges *Lasioptera rubi* Heeger (Diptera: Cecidomyiidae) on *Rubus* (blackberries etc.) (Vlug, 1995).

26. *Inostemma walkeri* Kieffer, 1914 (Fig. 32)

synonymy *Inostemma boscii* (Jurine, 1807) misidentification

O'Connor *et al.*, 2004 (**IRELAND**). Buhl and Notton, 2009 (**IRELAND**). Buhl and O'Connor, 2010b (**WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland).

Flight period: July.

Haliday found the species on cereals *Cerealia* (Walker, 1851). A parasitoid of gall midges (Diptera: Cecidomyiidae) belonging to *Jaapiella medicaginis* Rübsaamen on lucerne *Medicago sativa* and *Rhabdophaga heterobia* (Loew) (Vlug, 1995). The latter gall midge occurs on willow *Salix*.

27. *Iphitrachelus lar* Haliday, 1835 (Fig. 33)

O'Connor et al., 2004 (near **BELFAST** [J3674]). *Buhl and Notton*, 2009 (**DOWN**: Newcastle, Tipperary Wood (J3631)). *Buhl and O'Connor*, 2010b (**WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland).

Flight period: July and September.

The host is unknown but the species has been collected on dense stands of periwinkle *Vinca minor* (Vlug, 1995).

28. *Isocybus erato* (Walker, 1835)

O'Connor et al., 2004 (**IRELAND**). *Buhl and Notton*, 2009 (**IRELAND**).

29. *Isocybus walkeri* Kieffer, 1926

Synonymy *Scelio ruficornis* Latreille, 1805 *sensu* Walker, 1835

O'Connor et al., 2004 (**IRELAND**, on grass beneath trees, in marshes). *Buhl and Notton*, 2009 (**IRELAND**).

Flight period: July.

30. *Isostasius punctiger* (Nees, 1834) (Fig. 34)

Synonymy *Inostemma scrutator* (Walker, 1835)

O'Connor et al., 2004 (**DOWN**: Holywood (J4079)). *Buhl and Notton*, 2009 (**CORK**: Middleton (W8772), reared from *Contarinia tritici*. **DUBLIN**: Dublin [Glasnevin (O1538)], reared from *C. tritici*. No precise locality is given for this record in Buhl and Notton (2009). The specimens emerged in 1952 and are in the H. F. Barnes Collection in the Natural History Museum, London. In that period, Dr E. McMahon (1954) was investigating the hatching of the eggs of the lemon blossom midge in the laboratory at the Agricultural Zoology Department of University College Dublin and was in contact with Barnes. In 1926 the Faculty of Agriculture, University College Dublin had moved to the site of the Albert Agricultural College in Glasnevin which had a farm of over 359 acres (145ha). Undoubtedly, this farm was where the material of *I. punctiger* originated).

Flight period: June.

The species was rarely found on cereals by A. H. Haliday (Walker, 1835). A parasitoid of the gall midges (Diptera: Cecidomyiidae) *Contarinia tritici* Kirby on oats *Avena* and wheat *Triticum vulgare*, and *Sitodiplosis mosellana* (Géhin) on *T. vulgare* (Vlug, 1995).

31. *Leptacis coryphe* Buhl, 1998 (Fig. 35)

Buhl and Notton, 2009 (**DONEGAL**: one mile south of Donegal Town (G9278)).

Flight period: June.

32. *Leptacis halia* (Walker, 1835) (Fig. 36)

Buhl and O'Connor, 2010a (**WATERFORD**: Woodstown (S6904), swept from vegetation in a large marsh).

Flight Period: August.

33. *Leptacis laodice* (Walker, 1835) (Fig. 37)

synonymy *Leptacis buchi* Buhl, 1997

O'Connor et al., 2004 (**CORK**: Glengarriff (V9256), swept in an oak *Quercus* wood.

WATERFORD: Portlaw Woods (S4415), swept from vegetation in oak *Quercus* woodland.

WEXFORD: Tintern Abbey (S7910), mixed woodland beside a river. **WICKLOW**: Glen of

the Downs (O2611), mixed woodland). *Buhl and O'Connor, 2008* (**CARLOW**: Altamont

Gardens (S8665), mixed woodland beside the River Slaney). *Buhl and Notton, 2009*

(**IRELAND**). *Buhl and O'Connor, 2012c* (**CARLOW**: Saint Mullins (S7238), River Barrow,

swept from river-bank vegetation). *Buhl and O'Connor, 2010b* (**WEXFORD**: Ferrycarrig

(T0023), swept in a marsh with birch *Betula* and hazel *Corylus*; Killoughrim Forest (S8941),

swept in mixed woodland; Oaklands Wood (S7125), swept in mixed woodland; Stoneyford

near Broadway (T1009), Malaise trap sited in vegetation beside a stream).

New record. **WICKLOW**: Glendalough (T1195), 3♂♂ 11 September 1990, swept from

vegetation beside woodland, JPOC.

Flight period: March, May-September.

34. *Leptacis orchymonti* (Debauche, 1947) (Fig. 38)

Buhl and O'Connor, 2009a (**WATERFORD**: Glasha River (S3022), swept from river-side vegetation). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: July.

35. *Leptacis ozines* (Walker, 1835) (Fig. 39)

O'Connor et al., 2004 (**WEXFORD**: Ferrycarrig (T0022), swept in a marsh with birch *Betula* and hazel *Corylus*). *Buhl and Notton*, 2009 (**KILDARE**: Royal Canal (O0036). The date for this record should read 1943 and not 1973). *Buhl and O'Connor*, 2010b (**DUBLIN**: Castleknock (O0837), Malaise trap in suburban garden. **WEXFORD**: Stoneyford near Broadway (T1009), Malaise trap and swept from vegetation beside a stream). *Buhl and O'Connor*, 2012c (**WEXFORD**: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Stoneyford near Broadway (T1009), swept from vegetation beside a stream [a different year to in the previous reference]).

New record. **WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland, ♀ 29 July 2008, JPOC.

Flight period: June-August.

36. *Leptacis tipulae* (Kirby, 1798) (Fig. 40)

Synonymy *Platygaster scutellaris* Nees, 1834

O'Connor et al., 2004 (**DOWN**: Holywood (J4079), on cereals and on willows *Salix*. **WEXFORD**: Killoughrim Forest (S8941), swept in mixed woodland). *Buhl and Notton*, 2009 (**IRELAND**). *Buhl and O'Connor*, 2010b (**DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden. **WATERFORD**: Ballin Lough (S4403), swept from lake-side vegetation; Dunhill Castle (S5000)).

New record. **WEXFORD**: Curracloe (T1127), ♀ 30 July 2008, swept from the sand-dunes, JPOC.

Flight period: June-September.

A parasitoid of the gall midges (Diptera: Cecidomyiidae) *Sitodiplosis mosellana* and *Contarinia tritici* on wheat *Triticum vulgare* (Vlug, 1995).

37. *Leptacis vlugi* Buhl, 1997 (Fig. 41)

Buhl and O'Connor, 2010a (**WEXFORD**: Stoneyford near Broadway (T1009), swept from vegetation beside a stream; Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill).

New record. **WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland, ♀ 4 August 2008, JPOC.

Flight period: August.

38. *Metaclisis areolata* (Haliday, 1835) (Fig. 42)

O'Connor et al., 2004 (**DOWN**: Holywood (J4079), in drains on the seacoast). *Buhl and Notton, 2009* (**IRELAND**).

39. *Metaclisis montagnei* Maneval, 1936 (Fig. 43)

Buhl and Notton, 2009 (**SLIGO**: Bunduff (G7155)).

Flight period: July.

40. *Piestopleura catillus* (Walker, 1835) (Fig. 44)

O'Connor et al., 2004 (**DOWN**: Holywood (J4079), under the shade of trees. **GALWAY**: Galway (M2925), under the shade of trees). *Buhl and Notton, 2009* (**IRELAND**).

A parasitoid of the gall midge *Thomasiina theobaldi* Barnes (Diptera: Cecidomyiidae) on raspberry (Vlug, 1995).

41. *Piestopleura mamertes* (Walker, 1835) (Fig. 45)

O'Connor et al., 2004 (**DOWN**: Holywood (J4079), on willows *Salix*). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: September.

42. *Piestopleura seron* (Walker, 1835)

O'Connor et al., 2004 (**IRELAND**). *Buhl and Notton, 2009* (**IRELAND**).

43. *Platygaster (Platygaster) abisares* Walker, 1835

O'Connor et al., 2004 (**IRELAND**). *Buhl and Notton, 2009* (**IRELAND**).

44. *Platygaster (Platygaster) acrisius* Walker, 1835 (Fig. 46)

Buhl and O'Connor, 2009a (**WEXFORD**: Killoughrim (S8941), swept in mixed woodland).

Buhl and Notton, 2009 (**IRELAND**).

Flight period: June.

45. *Platygaster (Platygaster) aebeloeensis* Buhl, 2001 (Fig. 47)

Buhl and O'Connor, 2009a (**WATERFORD**: Knockaderry (S4905), swept from vegetation beside the reservoir). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**WICKLOW**: Russellstown Park (N9610), swept from vegetation in a marshy area).

Flight period: May and July.

46. *Platygaster (Platygaster) aegaeus* Walker, 1835 (Fig. 48)

*O'Connor et al., 2004 (IRELAND). Buhl and Notton, 2009 (SLIGO: Trawalua (G6954)). Buhl and O'Connor, 2010b (WEXFORD: Craywell New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Oaklands Wood (S7125), swept in mixed woodland. WICKLOW: Coolattin Wood, Tomnafinnoge (T0269), oak *Quercus* woodland). Buhl and O'Connor, 2012c (WEXFORD: Stoneyford near Broadway (T1009), swept from vegetation beside a stream).*

Flight period: July-September.

47. *Platygaster (Platygaster) ashei* Buhl and O'Connor, 2012 (Figs 1, 2, 49)

Buhl and O'Connor, 2012a (WEXFORD: Slieve Coiltia near New Ross (S7319), swept from vegetation near the 270m summit).

Flight period: August.

48. *Platygaster (Platygaster) athamas* Walker, 1835 (Fig. 50)

Buhl and O'Connor, 2010a (WEXFORD: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), swept from the sand-dunes).

Flight period: August.

A parasitoid of the gall midges (Diptera: Cecidomyiidae) *Bayeria capitigena* (Bremi) on leafy spurge *Euphorbia esula* and *Rhabdophaga terminalis* Loew on white willow *Salix alba* (Vlug, 1995).

49. *Platygaster (Platygaster) betulae* (Kieffer, 1916) (Fig. 51)

Buhl and O'Connor, 2009a (WESTMEATH: Ballynafid Lough (N4060), mixed woodland beside the lake). Buhl and Notton, 2009 (DUBLIN: Glenasmole (O1019)).

Flight period: April-May.

A parasitoid of gall midges (Diptera: Cecidomyiidae) belonging to *Semudobia betulae* (Winnertz) in fruit swellings on silver birch *Betula alba* and downy birch *B. pubescens* (Vlug, 1995).

50. *Platygaster (Platygaster) betularia* Kieffer, 1916 (Fig. 52)

Buhl and O'Connor, 2010a (MONAGHAN: Lough Muckno Forest Park, Castleblayney (H8320), swept from lake-side vegetation).

Flight period: April.

A parasitoid of gall midges (Diptera: Cecidomyiidae) belonging to *Semudobia betulae* in fruit swellings on silver birch *Betula alba* and downy birch *B. pubescens* (Vlug, 1995).

51. *Platygaster (Platygaster) chloropus* Thomson, 1859 (Fig. 53)

Buhl and O'Connor, 2009a (**CLARE**: Burren, Ballyvelaghan Lough (M2711). **WEXFORD**: Killoughrim (S8941), mixed woodland). *Buhl and Notton, 2009* (**DUBLIN**: Glenasmole (O1019)). *Buhl and O'Connor, 2010b* (**DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden). *Buhl and O'Connor, 2012c* (**WEXFORD**: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill).
Flight period: April-June, August.

52. *Platygaster (Platygaster) confinis* Thomson, 1859 (Fig. 54)

Buhl and O'Connor, 2009a (**CLARE**: Burren, Corker Pass (M3010), swept from vegetation on limestone). *Buhl and Notton, 2009* (**IRELAND**).
Flight period: May.

53. *Platygaster (Platygaster) contorticornis* Ratzeburg, 1844 (Fig. 55)

O'Connor, 2008 (**MONAGHAN**: Black Island, Muckno Forest Park, Castleblayney (H8320), reared from the cones of Norway spruce *Picea abies*). *Buhl and Notton, 2009* (**IRELAND**).
Flight period: March.

A parasitoid of the gall midge *Kaltenbachiola strobi* Winnertz (Diptera: Cecidomyiidae) on *Picea* spp. (Vlug, 1995).

54. *Platygaster (Platygaster) cottei* Kieffer, 1913 (Fig. 56)

O'Connor et al., 2004 (**WICKLOW**: Russellstown Park (N9610), mixed woodland beside the reservoir). *Buhl and Notton, 2009* (**IRELAND**).
Flight period: August.

A parasitoid of the gall midge *Lasioptera carophila* F. Löw (Diptera: Cecidomyiidae) in stem galls on wild carrot *Daucus carota* (Vlug, 1995).

55. *Platygaster (Platygaster) cyrsilus* Walker, 1835 (Fig. 57)

O'Connor et al., 2004 (**IRELAND**). *Buhl and O'Connor, 2008* (**WATERFORD**: Portlaw Woods (S4415), swept in oak *Quercus* woodland). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**CAVAN**: Virginia Woods (N5987), swept in mixed woodland). **WICKLOW**: Glendalough (T1195), swept from vegetation beside woodland).
Flight period: April-May and September.

56. *Platygaster (Platygaster) damokles* Buhl, 1998 (Fig. 58)

Buhl and O'Connor, 2013 (WEXFORD: Slieve Coiltia near New Ross (S7319), swept from vegetation near the 270m summit).

Flight period: May.

The Irish record was overlooked by Buhl, Broad and Notton (2016).

57. *Platygaster (Platygaster) danica* Buhl, 1999 (Fig. 59)

Buhl and O'Connor, 2008 (WICKLOW: Knocksink Wood (O2117), swept in mixed woodland). Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (DUBLIN: Clondalkin (O0631), Malaise trap in a suburban garden).

Flight period: May-June.

58. *Platygaster (Platygaster) demades* Walker, 1835 (Fig. 60)

Buhl and O'Connor, 2010a (MONAGHAN: Lough Muckno Forest Park, Castleblayney (H8320), swept from lake-side vegetation. WATERFORD: Woodstown (S6904), swept from vegetation in a large marsh). Buhl and O'Connor, 2012c (WATERFORD: Dunmore East (X6999), swept from the coastal cliffs at Black Knob. WEXFORD: Ballyteige (S9504), swept from vegetation on the sand-dunes; Curracloe (T1127), swept from the sand-dunes).

Flight period: April, August.

A parasitoid of gall midges (Diptera: Cecidomyiidae) belonging to *Dasyneura mali* Kieffer on apple *Malus* spp. and *Wachtliella ericina* F. Löw on winter heath *Erica carnea* (Vlug, 1995).

59. *Platygaster (Platygaster) dryope* Walker, 1835 (Fig. 61)

O'Connor et al., 2004 (IRELAND). Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (WEXFORD: Slieve Coiltia (S7221), swept from grass tussocks near the 270m summit).

Flight period: August.

60. *Platygaster (Platygaster) elongata* Haliday, 1833 (Fig. 62)

*O'Connor et al., 2004 (IRELAND). Buhl and O'Connor, 2008 (CLARE: near Ennis (R2979), swept in mixed woodland mainly consisting of hazel *Corylus*). Buhl and O'Connor, 2010b (WICKLOW: Russellstown Park (N9610), swept from vegetation in a marshy area).*

Flight period: May.

61. *Platygaster (Platygaster) ennius* Walker, 1835 (Fig. 63)

O'Connor et al., 2004 (IRELAND). Buhl and Notton, 2009 (LEITRIM [This specimen is

in the Natural History Museum, London and was collected by G. E. J. Nixon during July 1933. At that time, Nixon collected in the Tullaghan area (G7857)]).

Flight period: July.

62. *Platygaster (Platygaster) ensifer* (Westwood, 1833)

O'Connor et al., 2004 (IRELAND). *Buhl and Notton*, 2009 (IRELAND).

63. *Platygaster (Platygaster) eriphyle* Walker, 1835 (Fig. 64)

Buhl and O'Connor, 2008 (WEXFORD: The Raven (T1126), swept amongst conifers growing on the sand-dunes). *Buhl and Notton*, 2009 (IRELAND). *Buhl and O'Connor*, 2010b (CARLOW: Saint Mullins (S7238), swept from vegetation on the banks of the River Barrow. WATERFORD: Ballin Lough (S4403), swept from lake-side vegetation).

New record. WEXFORD: Curracloe (T1127), ♀ 28 May, 1987, swept from the sand-dunes, JPOC.

Flight period: April-June.

A parasitoid of gall midges (Diptera: Cecidomyiidae) belonging to *Rhopalomyia* in bud galls on *Artemisia* (Buhl, 2001).

64. *Platygaster (Platygaster) euhemerus* Walker, 1835 (Fig. 65)

Buhl and O'Connor, 2009a (WEXFORD: Killoughrim (S8941), mixed woodland). *Buhl and Notton*, 2009 (IRELAND).

Flight period: May.

65. *Platygaster (Platygaster) floricola* Kieffer, 1916 (Fig. 66)

Buhl and Notton, 2009 (DUBLIN: Clondalkin (O0731)).

Flight period: June.

A parasitoid of gall midges *Dasyneura* (Diptera: Cecidomyiidae) in flower swellings on radish *Raphanus* (Buhl, 2001).

66. *Platygaster (Platygaster) frater* Buhl, 2006 (Fig. 67)

Buhl and O'Connor, 2009a (CARLOW: Saint Mullins (S7238), River Barrow, swept from river-bank vegetation). *Buhl and Notton*, 2009 (IRELAND).

Flight period: June.

67. *Platygaster (Platygaster) galenus* Walker, 1835 (Fig. 68)

O'Connor et al., 2004 (IRELAND). *Buhl and Notton*, 2009 (SLIGO: Bunduff (G7155)).

Flight period: July.

A parasitoid of gall midges (Diptera: Cecidomyiidae) in galls on *Halimione* (Buhl, 2001).

68. *Platygaster (Platygaster) gracilipes* Huggert, 1975 (Fig. 69)

Buhl and O'Connor, 2008 (WEXFORD: Oaklands Wood (S7125), swept in mixed woodland).

Buhl and Notton, 2009 (DUBLIN: Glenasmole (O1019). SLIGO: Trawalua (G6954)). Buhl and O'Connor, 2010b (DOWN: Cultra (J4180). TYRONE: Moy (H8356), mixed woodland).

New record. WEXFORD: Stoneyford near Broadway (T1009), 3 ♀♀ 12-21 August 1993, Malaise trap sited in vegetation beside a stream, JPOC.

Flight period: June- August.

69. *Platygaster (Platygaster) gyge* Walker, 1835 (Fig. 70)

O'Connor et al., 2004 (IRELAND). Buhl and O'Connor, 2008 (CLARE: Cooleabeg (M1602), swept from damaged blanket bog in the Burren). Buhl and Notton, 2009 (IRELAND).

Flight period: May.

The host may be associated with *Carex* spp. (Vlug, 1995).

70. *Platygaster (Platygaster) henkvlugi* Buhl, 1996 (Fig. 71)

Buhl and O'Connor, 2008 (CLARE: Cooleabeg (M1602), swept from damaged blanket bog in the Burren). Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2012c (WEXFORD: Ballyteige (S9504), swept from vegetation on the sand-dunes; Slieve Coiltia (S7221), swept from vegetation near the 270m summit).

New record. WEXFORD: Craywell, New Ross (S7228), ♀ 17 May 2012, swept from an overgrown area in a small public park on a steep hill, JPOC.

Flight period: May, July-August.

71. *Platygaster (Platygaster) hibernica* Buhl and O'Connor, 2009 (Figs 3, 72)

Buhl and O'Connor, 2009a (CLARE: Burren, Corker Pass (M3010), swept from vegetation on limestone. WEXFORD: Curracloe (T1127), swept from the sand-dunes). Buhl and Notton, 2009 (IRELAND).

Flight period: May.

72. *Platygaster (Platygaster) inermis* Walker, 1835 (Fig. 73)

*O'Connor et al., 2004 (IRELAND). Buhl and O'Connor, 2008 (CLARE: near Ennis (R2979), swept in mixed woodland mainly consisting of hazel *Corylus*). Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (WICKLOW: Russellstown Park (N9610), swept*

from vegetation in a marshy area). *Buhl and O'Connor, 2012c* (**WEXFORD**: Baginbun (S8003), swept from vegetation on the beach; Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), swept from the sand-dunes).

Flight period: May, August.

73. *Platygaster (Platygaster) intermediana* Buhl, 2009 (Fig. 74)

Synonymy *Platygaster intermedia* Buhl, 2009 preoccupied

Buhl and O'Connor, 2008 (**CLARE**: Fanore (M1308), swept from the sand-dunes). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: August.

74. *Platygaster (Platygaster) leptines* Walker, 1835 (Fig. 75)

Buhl and O'Connor, 2012b (**CAVAN**: Dun na Rí (N7997), swept in mixed woodland).

Flight period: April.

75. *Platygaster (Platygaster) lineaticeps* Buhl, 1994 (Fig. 76)

Buhl and Notton, 2009 (**LEITRIM** [(G7857)]. **SLIGO**: Trawalua (G6954)).

Flight period: July.

76. *Platygaster (Platygaster) longestriolata* Thomson, 1859 (Fig. 77)

Buhl and O'Connor, 2008 (**WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland).

Buhl and Notton, 2009 (**IRELAND**). *Buhl and O'Connor, 2010b* (**WICKLOW**: Avondale (T1985), mixed woodland).

New records. **WEXFORD**: Slieve Coiltia (S7221), ♀ 14 August 2009, swept from vegetation near the 270m summit, JPOC. **WICKLOW**: Calary Lower (O2311), ♀ 22 August 1988, swept in a marshy area, JPOC.

Flight period: April-May, August.

77. *Platygaster (Platygaster) lysicles* Walker, 1835 (Fig. 78)

O'Connor et al., 2004 (**DOWN**: Holywood (J4079)). *Buhl and Notton, 2009* (**TIPPERARY**: Aherlow (R9332); Ballinacourty (R8529). **WICKLOW**: Athdown (O0715)). *Buhl and O'Connor, 2010b* (**CORK**: Sheep's Head (V7334), swept from sea-shore vegetation. **DUBLIN**: Slade of Saggart (O0324), swept from vegetation on the river bank. **WATERFORD**: Mahon Falls (S3009), swept on mountain moorland).

Flight period: July-September.

78. *Platygaster (Platygaster) malpighii* Kieffer, 1916 (Fig. 79)

Synonymy *Platygaster hansenii* Buhl, 2006

Buhl and O'Connor, 2008 as *Platygaster hansenii* (**WEXFORD**: Ferrycarrig (T0022), swept in marshland with mixed birch *Betula* and hazel *Corylus*; The Raven (T1126), swept amongst conifers growing on the sand-dunes). *Buhl and Notton, 2009* as *P. hansenii* (**DUBLIN**: Glenasmole (O1019)). *Buhl and O'Connor, 2010b* (**CLARE**: Kilshanny (R1292), swept from the hedgerows).

Flight period: June.

A parasitoid of the gall midge *Craneiobia corni* Girault (Diptera: Cecidomyiidae) in leaf galls on common dogwood *Cornus sanguinea* (Vlug, 1995).

79. *Platygaster (Platygaster) manto* Walker, 1835 (Fig. 80)

O'Connor et al., 2004 (**IRELAND**). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2013* (**WEXFORD**: New Ross, Craywell (S7228), swept from an overgrown area in a small public park on a steep hill).

Flight period: August.

A parasitoid of the gall midge *Paradiplosis abietis* (Hubault) in the needles of *Abies* (Vlug, 1995; Buhl, 2001).

80. *Platygaster (Platygaster) marginata* Thomson, 1859 (Fig. 81)

Buhl and O'Connor, 2008 (**WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**WESTMEATH**: Ballynafid Lough (N4060), swept from lake-side vegetation).

New record. **WEXFORD**: Killoughrim Forest (S8941), ♀ 4 June 1987, swept in mixed woodland, JPOC.

Flight period: May-June.

81. *Platygaster (Platygaster) masneri* Huggert, 1975 (Fig. 82)

Buhl and O'Connor, 2008 (**CORK**: Glengarriff (V9256), swept in oak *Quercus* woodland). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: June.

82. *Platygaster (Platygaster) munita* Walker, 1835 (Fig. 83)

Buhl and O'Connor, 2010a (**MEATH**: Batterjohn Big (N8953), sand quarry).

Flight period: May.

83. *Platygaster (Platygaster) nashi* Buhl and O'Connor, 2011 (Fig. 84)

Buhl and O'Connor, 2012c (**WEXFORD**: Ballyteige (S9504), swept from vegetation on the sand-dunes).

Flight period: August.

The Irish record was overlooked by Buhl, Broad and Notton (2016).

84. *Platygaster (Platygaster) nigra* Nees, 1834

O'Connor et al., 2004 (**IRELAND**). Buhl and Notton, 2009 (**IRELAND**).

A parasitoid of gall midges *Wachtliella* (Diptera: Cecidomyiidae) in leaf margin rolls on *Polygonum* (Buhl, 2001).

85. *Platygaster (Platygaster) nisus* Walker, 1835 (Fig. 85)

O'Connor et al., 2004 (**WICKLOW**: Calary Lower (O2311), swept in a marshy area). Buhl and O'Connor, 2008 (**CORK**: Glengarriff (V9057), swept in oak *Quercus* woodland). Buhl and Notton, 2009 (**SLIGO**: Trawalua (G6954)). Buhl and O'Connor, 2010b (**DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden). Buhl and O'Connor, 2012c (**WEXFORD**: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), swept from the sand-dunes; Stoneyford near Broadway (T1009), swept from vegetation beside a stream).

New record. **WATERFORD**: Portlaw woods (S4415), ♀ 16 July 1987, swept in oak *Quercus* woodland, JPOC and MAOC.

Flight period: June-August.

86. *Platygaster (Platygaster) oebealis* Walker, 1835 (Fig. 86)

Buhl and O'Connor, 2009a (**CLARE**: Burren, Ballyvelaghan Lough (M2711), collected from lake-side vegetation; Burren, Corkscrew Hill (M2020), swept from vegetation on the limestone. **DOWN**: Cultra (J4180)). Buhl and Notton, 2009 (**IRELAND**). Buhl and O'Connor, 2010b (**WEXFORD**: Curracloe (T1127), swept from the vegetation on the sand-dunes. **WICKLOW**: Russellstown Park (N9610), swept from vegetation in a marshy area). Buhl and O'Connor, 2012c (**WEXFORD**: Slieve Coiltia (S7221), swept from vegetation near the 270m summit). Flight period: May-August.

A parasitoid of the gall midge *Dasyneura brassicae* (Winnertz) (Diptera: Cecidomyiidae) in siliqua swellings on *Brassica* (Vlug, 1995; Buhl, 2001). Ghahari and Buhl (2011) report *Dasyneura spadicea* (Rübsaamen) on vetch *Vicia cracca* as a host.

87. *Platygaster (Platygaster) oculus* Walker, 1835

O'Connor et al., 2004 (IRELAND). Buhl and Notton, 2009 (IRELAND).

88. *Platygaster (Platygaster) orcus* Walker, 1835 (Fig. 87)

Buhl and O'Connor, 2009a (WICKLOW: Avondale (T1985), mixed woodland). Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (KILDARE: Newbridge Fen (N7616), swept from vegetation in the fen).

Flight period: April-May.

89. *Platygaster (Platygaster) orus* Walker, 1835

O'Connor et al., 2004 (IRELAND). Buhl and Notton, 2009 (IRELAND).

90. *Platygaster (Platygaster) oscus* Walker, 1835 (Fig. 88)

O'Connor et al., 2004 (IRELAND). Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (WICKLOW: Glendalough (T1195), swept from vegetation beside woodland). Buhl and O'Connor, 2012c (WEXFORD: Stoneyford near Broadway (T1009), swept from vegetation beside a stream).

Flight period: August-September.

91. *Platygaster (Platygaster) otanes* Walker, 1835 (Fig. 89)

*O'Connor et al., 2004 (IRELAND). Buhl and Notton, 2009 (KILDARE: Royal Canal, Rye Water (O0036)). Buhl and O'Connor, 2010b (CAVAN: Virginia (N5888), swept in alder *Alnus* fen. DUBLIN: North Bull Island (O2337), swept from vegetation on the sand-dunes).*

Flight period: May.

92. *Platygaster (Platygaster) pedasus* Walker, 1835 (Fig. 90)

Buhl and O'Connor, 2009a (WATERFORD: Knockaderry (S4905), swept from vegetation beside the reservoir. WEXFORD: Ballyteige (S9504), swept from sand-dunes; J. F. Kennedy Park (S7319), mixed woodland. Buhl and Notton, 2009 (IRELAND).

Flight period: July-August.

93. *Platygaster (Platygaster) pelias* Walker, 1835 (Fig. 91)

*O'Connor et al., 2004 (IRELAND, on willows *Salix*). Buhl and O'Connor, 2008 (WATERFORD: Passage East (S6811), swept from vegetation beside a hill-top path). Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (CARLOW: Saint Mullins*

(S7238), swept from vegetation on the banks of the River Barrow. **DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden).

Flight period: April-June, August.

The species has been reared from *Dasyneura fraxini* (Bremi) (Diptera: Cecidomyiidae) on ash *Fraxinus* (Buhl and Bennett, 2009) and cecidomyiid larvae on hawthorn *Crataegus monogyna* (Buhl and Bennett, 2011).

94. *Platygaster (Platygaster) philinna* Walker, 1835 (Fig. 92)

Buhl and Notton, 2009 (**WICKLOW**: Clara (T1792)).

Flight period: June.

A parasitoid of gall midges *Dasyneura* (Diptera: Cecidomyiidae) in the stems of willows *Salix* (Buhl, 2001).

95. *Platygaster (Platygaster) puccinii* Vlug, 1995 (Fig. 93)

Buhl and O'Connor, 2008 (**WEXFORD**: Nethertown (T1205), swept from willows *Salix* in a marsh). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: June.

96. *Platygaster (Platygaster) quadriceps* Buhl, 2006 (Fig. 94)

Buhl and O'Connor, 2010a (**DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden).

Flight period: April-May.

97. *Platygaster (Platygaster) sagana* Walker, 1835 (Fig. 95)

O'Connor et al., 2004 (**WEXFORD**: Curracloe (T1127), swept from the sand-dunes). *Buhl and O'Connor, 2008* (**CORK**: Glengarriff (V9057), swept in oak *Quercus* woodland. **WATERFORD**: Passage East (S6811), swept from vegetation beside a hill-top path). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**GALWAY**: Dunguaire, Kinvara (M3810), swept from vegetation on the seashore). *Buhl and O'Connor, 2012c* (**WEXFORD**: Ballyteige (S9504), swept from vegetation on the sand-dunes).

New records. WATERFORD: Ballin Lough (S4403), 2♀ 18 June 1990, swept from lake-side vegetation, JPOC; Ballymacaw Cove (X6499), 3♀ 3 July 1984, swept from vegetation along a small stream entering the sea, JPOC.

Flight period: June-August.

A parasitoid of gall midges *Rhopalomyia* (Diptera: Cecidomyiidae) in flower swellings on *Achillea* (Buhl, 2001).

98. *Platygaster (Platygaster) signata* (Förster, 1861) (Fig. 96)

Buhl and O'Connor, 2009a (**MEATH**: Mornington (O1575), swept from sand-dunes). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: June.

99. *Platygaster (Platygaster) singularis* Buhl, 2006 (Fig. 97)

Buhl and O'Connor, 2009a (**CLARE**: Burren, Corkscrew Hill (M2020), swept from vegetation on the limestone). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: May.

100. *Platygaster (Platygaster) splendidula* Ruthe, 1859 (Fig. 98)

Buhl and O'Connor, 2008 (**KILDARE**: Grand Canal (N9326), swept from canal-side vegetation). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**DOWN**: Cultra (J4180). **DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden. **WEXFORD**: Ballyteige (S9504), ♀♀ 13 August 2009, swept from the sand-dunes).

New records. **WATERFORD**: Dunmore East (X6999), ♀ 11 August 2010, swept from the coastal cliffs at Black Knob, JPOC. **WEXFORD**: Slieve Coiltia near New Ross (S7319), ♀ 7 August 2010, swept from vegetation near the 270m summit, JPOC.

Flight period: May-August.

A parasitoid of gall midges *Mayetiola* (Diptera: Cecidomyiidae) in the stem (culm) galls on *Poa* (Buhl, 2001).

101. *Platygaster (Platygaster) striatithorax* Buhl, 1994 (Fig. 99)

Buhl and O'Connor, 2009b (**WEXFORD**: Killoughrim Forest (S8941), swept in mixed woodland).

Flight period: June.

The Irish record was overlooked by Buhl, Broad and Notton (2016).

102. *Platygaster (Platygaster) subapicalis* Buhl, 2006 (Fig. 100)

Buhl and O'Connor, 2009a (**MEATH**: Mornington (O1575), swept from sand-dunes). *Buhl and Notton, 2009* (**IRELAND**).

On the Isle of Man, adults have been reared from *Contarinia* (Diptera: Cecidomyiidae) larvae in the flower buds of common laurel *Prunus laurocerasus* (Buhl and Bennett, 2009).

Flight period: June.

103. *Platygaster (Platygaster) subuliformis* (Kieffer, 1926) (Fig. 101)

Buhl and O'Connor, 2009a (**MEATH**: Batterjohn Big (N8953), old gravel-pit. **WATERFORD**: Dunmore East (X6999), coastal cliffs at Black Knob). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: May and August.

104. *Platygaster (Platygaster) suecica* (Kieffer, 1926) (Fig. 102)

Buhl and O'Connor, 2008 (**WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: June.

A parasitoid of gall midges *Lasioptera* (Diptera: Cecidomyiidae) in stem swellings on *Foeniculum* (Buhl, 2001).

105. *Platygaster (Platygaster) tisia* Walker, 1835 (Fig. 103)

O'Connor et al., 2004 (**CAVAN**: Virginia (N5987), mixed woodland). *Buhl and O'Connor, 2008* (**WATERFORD**: Passage East (S6811), swept from vegetation beside a hill-top path. **WEXFORD**: Ballyteige (S9504), swept from vegetation on the sand-dunes; Curracloe (T1127), swept from the sand-dunes; J. F. Kennedy Park (S7319), mixed woodland; Killoughrim Forest (S9041), swept in mixed woodland with oak *Quercus*). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**CARLOW**: Bahana Woods (S7239), swept in mixed woodland. **CLARE**: Fanore (M1308), swept from vegetation on the sand-dunes; Lisdoonvarna Spa (R1397), swept from vegetation beside the river. **DOWN**: Cultra (J4180)).

New records. **WATERFORD**: Ballin Lough (S4403), ♀ 4 July 1989, 2♀♀ 18 June 1990 and ♀ 19 June 1991, swept from lake-side vegetation, JPOC; Dunhill (S5304), 5♀♀ 29 June 1988, swept from a hedgerow, JPOC; Dunhill Castle (S5000), ♀ 11 July 1989, JPOC and MAOC; Glasha River (S3022), ♀ 8 July 1989, swept from river-side vegetation JPOC and MAOC. **WEXFORD**: Backstrand, Rosslare (T0918), ♀ 5 June 1994, swept from marshy ground, JPOC; Nethertown (T1204), 11♀♀ 4 June 1984, swept from willows *Salix* in a marsh, JPOC.

Flight period: May-July.

The species is associated with cocksfoot *Dactylis glomerata* (Buhl and Jørgensen, 2011).

106. *Platygaster (Platygaster) uniformis* Buhl, 2006 (Fig. 104)

Buhl and O'Connor, 2011b (**WEXFORD**: Slieve Coiltia near New Ross (S7319), swept from vegetation near the 270m summit).

Flight period: August.

107. *Platygaster (Platygaster) virgo* Day, 1971 (Fig. 105)

O'Connor et al., 2004 (WICKLOW: The Murrough (O3103), fen at). Buhl and Notton, 2009 (IRELAND).

Flight period: May.

A parasitoid of gall midges (Diptera: Cecidomyiidae) belonging to *Giraudiella* in stem galls on *Phragmites* (Buhl, 2001).

108. *Platygaster (Platygaster) xeneus* Walker, 1838 (Fig. 106)

O'Connor et al., 2004 (DOWN: Holywood near Belfast (J4079)). Buhl and Notton, 2009 (SLIGO: Trawalua (G6954)).

Flight period: July and September.

109. *Synopeas aceris* Buhl and Bennett, 2009 (Fig. 107)

*Buhl and O'Connor, 2013 (MONAGHAN: Rossmore Park (H6531), swept under flowering sycamores *Acer pseudoplatanus*. WEXFORD: J. F. Kennedy Park (S7219), swept under flowering sycamores in mixed woodland; Stoneyford near Broadway (T1009), swept from vegetation beside a stream).*

Irish specimens were also reared from the flowers of sycamores. On the Isle of Man, adults were reared from *Dasyneura* (Diptera: Cecidomyiidae) larvae in sycamore flowers (Buhl and Bennett, 2009).

Flight period: April-May, August.

The Irish record was overlooked by Buhl, Broad and Notton (2016).

110. *Synopeas breve* Buhl, 1998 (Fig. 108)

O'Connor et al., 2004 (TYRONE: Moy (H8356), mixed woodland). Buhl and Notton, 2009 (IRELAND)). Buhl and O'Connor, 2010b (DUBLIN: Castleknock (O0837), Malaise trap in a suburban garden). Buhl and O'Connor, 2012c (WEXFORD: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill).

Flight period: April-May, July-August.

111. *Synopeas chica* Buhl, 2004 (Fig. 109)

Buhl and O'Connor, 2012b (WEXFORD: Slieve Coiltia (S7221), swept from grass tussocks near the 270m summit).

Flight period: August.

112. *Synopeas ciliatum* Thomson, 1859 (Fig. 110)

Buhl and O'Connor, 2008 (**CORK**: Glengarriff (V9057), swept in oak *Quercus* woodland. **KILDARE**: Newbridge Fen (N7616), swept from fen vegetation). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**WEXFORD**: Baginbun Head (S8002), swept from vegetation on a rocky sea-shore; Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), swept from the sand-dunes; Stoneyford near Broadway (T1009), swept from vegetation beside a stream. **WICKLOW**: Coolattin Wood, Tomnafinnoge (T0269), oak *Quercus* woodland).
Flight period: July-September.

113. *Synopeas convexum* Thomson, 1859 (Fig. 111)

Buhl and O'Connor, 2010a (**WEXFORD**: Curracloe (T1127), swept from the sand-dunes. **WATERFORD**: Woodstown (S6904), swept from vegetation in a large marsh).
Flight period: August.

114. *Synopeas craterus* (Walker, 1835) (Fig. 112)

Synonymy *Synopeas mamertes* Kieffer, 1926

O'Connor et al., 2004 (**DOWN**: Holywood (J4079), found on willows *Salix*). *Buhl and Notton, 2009* (**IRELAND**).

A known parasitoid of the the blackcurrant midge *Resseliella ribis* (Marikovskij) (Diptera: Cecidomyiidae) (Vlug, 1995).

Flight period: September.

115. *Synopeas curvicauda* (Förster, 1856) (Fig. 113)

Buhl and O'Connor, 2009b (**WEXFORD**: Oaklands Wood (S7125), swept in mixed woodland). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2012c* (**CARLOW**: Saint Mullins (S7238), River Barrow, swept from river-bank vegetation).

A parasitoid of *Asphondylia conglomerata* Stefani (Diptera: Cecidomyiidae) on Mediterranean saltbush *Atriplex halimus* (Vlug, 1995). The Irish hosts are unknown.

Flight period: July-August.

116. *Synopeas erinum* Buhl and O'Connor, 2011 (Figs 4, 114)

Buhl and O'Connor 2011a (**WEXFORD**: Stoneyford near Broadway (T1009), Malaise trap in an overgrown area set aside as a wildlife sanctuary). *Buhl and O'Connor 2011b* (**WEXFORD**: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill).

The date of publication of the description is incorrectly cited as 2010 in Buhl, Broad and Notton (2016).

Flight period: August.

117. *Synopeas euryale* (Walker, 1835) (Fig. 115)

O'Connor et al., 2004 (**DOWN**: Holywood (J4079)). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden. **WEXFORD**: Curracloe (T1127), swept from vegetation on the sand-dunes; Duncannon (S7308), swept from vegetation on the sand-dunes). *Buhl and O'Connor, 2012c* (**WEXFORD**: Baginbun (S8003), swept from vegetation on the beach; Ballyteige (S9504), swept from vegetation on the sand dunes; Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill).

Flight period: June-August.

118. *Synopeas gibberosum* Buhl, 1997 (Fig. 116)

Buhl and O'Connor, 2008 (**CAVAN**: Woodlawn, Lough Sheelin (N4686), swept from vegetation beside the lake). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: September.

119. *Synopeas hibernicum* Buhl and O'Connor, 2009 (Figs 5, 117)

Buhl and O'Connor, 2009a (**CLARE**: Burren, Corker Pass (M3010), swept from vegetation on limestone; Lough Bunny (R3796), swept from limestone pavement beside the lake). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: May.

120. *Synopeas hyllus* (Walker, 1835) (Fig. 118)

O'Connor et al., 2004 (**IRELAND**). *Buhl and O'Connor, 2008* (**CLARE**: Fanore (M1303), swept from the sand-dunes. **WEXFORD**: Ballyteige (S9504), swept from the sand-dunes). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: July.

121. *Synopeas inerme* Thomson, 1859 (Fig. 119)

Buhl and O'Connor, 2010a (**WEXFORD**: Ballyteige (S9504), swept from the sand-dunes). *Buhl and O'Connor, 2012c* (**WEXFORD**: Baginbun (S8003), swept from vegetation on the beach; Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), swept from the sand-dunes).

New record. **WEXFORD:** Stoneyford near Broadway (T1009), ♀ 17 August 2010, swept from vegetation beside a stream, JPOC.

Flight period: August.

A parasitoid of the gall midge *Contarinia medicaginis* Kieffer (Diptera: Cecidomyiidae) on lucerne (Vlug, 1995).

122. *Synopeas jasius* (Walker, 1835) (Fig. 120)

O'Connor et al., 2004 (**KILKENNY:** Clonassy Wood (S5622)). *Buhl and O'Connor, 2008* (**WEXFORD:** Killoughrim Forest (S9041), swept in mixed woodland with oak *Quercus*). *Buhl and Notton, 2009* (**DUBLIN:** Bushy Park [O1429]).

Flight period: June and December.

123. *Synopeas larides* (Walker, 1835) (Fig. 121)

O'Connor et al., 2004 (**TYRONE:** Knockmany Forest (H5455)). *Buhl and O'Connor, 2008* (**WICKLOW:** Powerscourt (O2012)). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**WATERFORD:** Portlaw woods (S4415), swept in oak *Quercus* woodland). **WICKLOW:** Coolattin Wood, Tomnafinnoge (T0269), oak *Quercus* woodland).

Flight period: April-June, September.

A parasitoid of *Dasyneura tetensi* (Rübsaamen) on black currant *Ribes nigrum* (Buhl and Jørgensen, 2011).

124. *Synopeas lugubre* Thomson, 1859 (Fig. 122)

Buhl and O'Connor, 2009a (**WEXFORD:** Oaklands Wood (S7125), swept in mixed woodland). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: July.

Dasyneura brassicae (Winnertz) (Diptera: Cecidomyiidae) on *Brassica* sp. may be a host (Vlug, 1995).

125. *Synopeas myles* (Walker, 1835) (Fig. 123)

O'Connor et al., 2004 (**DOWN:** Holywood (J4079)). *Buhl and Notton, 2009* (**IRELAND**).

A parasitoid of the gall midge *Dasyneura marginemtorquens* (Bremi) (Diptera: Cecidomyiidae) on willow *Salix* (Vlug, 1995).

126. *Synopeas noyesi* Buhl, 2009 (Fig. 124)

Buhl, 2009 (**GALWAY:** Dunguaire, Kinvara). *Buhl and O'Connor, 2009a* (**GALWAY:** Dunguaire, Kinvara (M3810), swept from vegetation on the seashore). *Buhl and Notton, 2009*

(**IRELAND**). *Buhl and O'Connor, 2010a* (**WEXFORD**: Curracloe (T1127), swept from the sand-dunes). *Buhl and O'Connor, 2010b* (**KERRY**: Hotel Europa (V9291), Killarney, swept in mixed woodland beside the Lower Lake). *Buhl and O'Connor, 2012c* (**WEXFORD**: Curracloe (T1127), swept from the sand dunes. This paper describes the hitherto unknown male).

New record. **WEXFORD**: Craywell, New Ross (S7228), ♀ 9-10 August 2010, swept from an overgrown area in a small public park on a steep hill, JPOC.

Flight period: May-June and August.

127. *Synopeas opacum* Thomson, 1859 (Fig. 125)

Buhl and O'Connor, 2009a (**WATERFORD**: Ballin Lough (S4403), swept from lake-side vegetation). *Buhl and Notton, 2009* (**IRELAND**).

Flight period: June.

128. *Synopeas osaces* (Walker, 1835) (Fig. 126)

O'Connor et al., 2004 (**DOWN**: Holywood (J4079), on willows *Salix*). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden).

Flight period: August-September.

129. *Synopeas rhanis* (Walker, 1835) (Fig. 127)

Synonymy *Platygaster acco* Walker, 1835

O'Connor et al., 2004 (**IRELAND**). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**CORK**: Glengarriff (V9157), swept in oak *Quercus* woodland. **WATERFORD**: Dunmore East (X6999), swept from the coastal cliffs at Black Knob; Woodstown (S6904), swept from vegetation in a large marsh. **WEXFORD**: Ballyteige (S9504), swept from the sand-dunes; Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), swept from vegetation on the sand-dunes). *Buhl and O'Connor, 2012c* (**MONAGHAN**: Rossmore Park (H6531), swept from vegetation along a stream. **WEXFORD**: Ballyteige (S9504), swept from vegetation on the sand dunes; Curracloe (T1127), swept from the sand-dunes on a different date to that above).

New record. **CARLOW**: Saint Mullins (S7238), 3 ♀♀ 27 August 2012, swept from vegetation on the banks of the River Barrow, JPOC.

Flight period: April, July-August.

A parasitoid of the gall midges (Diptera: Cecidomyiidae) *Dasyneura ulmaria* (Bremi) on meadowsweet *Filipendula ulmaria* and *Dasyneura urticae* (Perris) on nettles *Urtica dioica* and *U. urens* (Vlug, 1995).

130. *Synopeas sosis* (Walker, 1835) (Fig. 128)

Synonymy *Synopeas muticum*: misidentification

O'Connor et al., 2004 (**DOWN**: Holywood (J4079), on willows *Salix*). *Buhl and O'Connor, 2008* (**MEATH**: Kilmessan (N8857), vegetation in laneway). *Buhl and O'Connor, 2008* misidentified as *Synopeas muticum* (**TYRONE**: Moy (H8356), collected in a Malaise trap in mixed woodland. **WATERFORD**: Portlaw Woods (S4415), swept in oak *Quercus* woodland). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**CARLOW**: Altamont Gardens (S8665), mixed woodland beside the River Slaney; Saint Mullins (S7238), swept from vegetation on the banks of the River Barrow. **DUBLIN**: Castleknock (O0837), Malaise trap in a suburban garden. **MONAGHAN**: Lough Muckno Forest Park, Castleblayney (H8320), swept from lake-side vegetation. **WATERFORD**: Portlaw woods (S4415), swept in oak *Quercus* woodland). *Buhl and O'Connor, 2010b* as *Synopeas muticus* (**CAVAN**: Virginia Woods (N5987), swept in mixed woodland. **MONAGHAN**: Nuremore (H8502), mixed woodland beside lake. **WEXFORD**: Killoughrim Forest (S8941), mixed woodland). *Buhl and O'Connor, 2012c* (**WEXFORD**: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill).

New records. **WEXFORD**: J. F. Kennedy Park (S7319), ♀ 19 May 2012, swept under flowering sycamores in mixed woodland, JPOC; Slieve Coiltia (S7221), ♀ 24 May 2012, swept from grass tussocks near the 270m summit, JPOC.

Flight period: April-June, August.

On the Isle of Man, adults have been recorded as *Synopeas muticus* in oak *Quercus* foliage infested with *Contarinia quercina* (Rübsaamen) (Diptera: Cecidomyiidae) (Buhl and Bennett, 2009).

131. *Synopeas tarsa* (Walker, 1835) (Fig. 129)

Buhl and O'Connor, 2009b (**WEXFORD**: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill). *Buhl and O'Connor, 2010a* (**WEXFORD**: Craywell, New Ross (S7228), swept from an overgrown area in a small public park on a steep hill. This paper describes the hitherto unknown male).

Flight period: August.

132. *Synopeas trebium* (Walker, 1835) (Fig. 130)

Buhl and O'Connor, 2009a (**TYRONE**: Moy (H8356), on common laurel *Prunus laurocerasus*. **WICKLOW**: Glen of the Downs (O2611), mixed woodland). *Buhl and Notton, 2009* (**IRELAND**). *Buhl and O'Connor, 2010b* (**WEXFORD**: Craywell, New Ross (S7228), swept

from an overgrown area in a small public park on a steep hill; Stoneyford near Broadway (T1009), swept from vegetation beside a stream).

New record. WEXFORD: Slieve Coiltia (S7221), 3♂♂♀ 23 August 2012, swept from grass tussocks near the 270m summit, JPOC.

Flight period: July-August.

133. *Synopeas velutinum* (Walker, 1835) (Fig. 131)

Buhl and O'Connor, 2011b (WEXFORD: Stoneyford near Broadway (T1009), swept from vegetation beside a stream).

Flight period: August.

134. *Trichacis didas* (Walker, 1835) (Fig. 132)

Buhl and O'Connor, 2010a (DUBLIN: Castleknock (O0837), Malaise trap in a suburban garden).

Flight period: April-May.

A parasitoid of the gall midge *Mayetioa destructor* Say (Diptera: Cecidomyiidae) on *Triticum* sp. (Vlug, 1995).

135. *Trichacis pisis* (Walker, 1835) (Fig. 133)

O'Connor et al., 2004 (IRELAND). Buhl and Notton, 2009 (IRELAND). Buhl and O'Connor, 2010b (CLARE: Corker Pass (M3010), Burren, swept from vegetation on limestone beside the green road).

Flight period: May.

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136. *Allotropa europus* (Walker, 1838) (Fig. 134)

O'Connor et al., 2004 (DOWN: Holywood near Belfast (J4079)). *Buhl and Notton, 2009 (IRELAND).*

137. *Allotropa mecrida* (Walker, 1835) (Fig. 135)

Buhl and O'Connor, 2012b (WEXFORD: Slieve Coiltia (S7221), swept from grass tussocks near the 270m summit).

Flight period: August.

The species is known from a number of pseudococcid (Hemiptera) hosts (Vlug, 1995).

138. *Fidiobia hispanica* Popovici and Buhl, 2010 (Fig. 136)

Synonymy *Fidiobia synergorum* (Kieffer, 1921) misidentification

O'Connor et al., 2004 as *Fidiobia synergorum* (**WICKLOW**: Powerscourt Waterfall (O2012), reared from cola nut galls of *Andricus lignicola* (Hartig) (Hymenoptera: Cynipidae) collected on oak *Quercus* trees). Buhl and Notton, 2009 as *F. synergorum* (**IRELAND**). Popovici and Buhl, 2010 (**WICKLOW**: Powerscourt Waterfall). Buhl and O'Connor, 2013 (**WEXFORD**: Slieve Coiltia near New Ross (S7319), swept from vegetation near the 270m summit. Stunted oaks *Quercus* occurred nearby).

Flight period: April-May.

139. *Platystasius transversus* (Thomson, 1859) (Fig. 137)

Synonymy *Platystasius strangaliophagus* Nixon, 1937

O'Connor et al., 2004 (**CORK**: Glengarriff (V9057), bred from the eggs of the longhorn beetle *Leptura aurulenta* Fabricius (Coleoptera: Cerambycidae). Buhl and Notton, 2009 (**IRELAND**). Flight period: July.

The species is known to attack the eggs of *Leptura aurulenta* (Vlug, 1995).

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FIGURE 1. *Platygaster ashei* Buhl and O'Connor (Platygastrinae). Dorsal view of female.



FIGURE 2. *Platygaster ashei* Buhl and O'Connor (Platygastrinae). Lateral view of female.



FIGURE 3. *Platygaster hibernica* Buhl and O'Connor, 2009 (Platygastrinae).

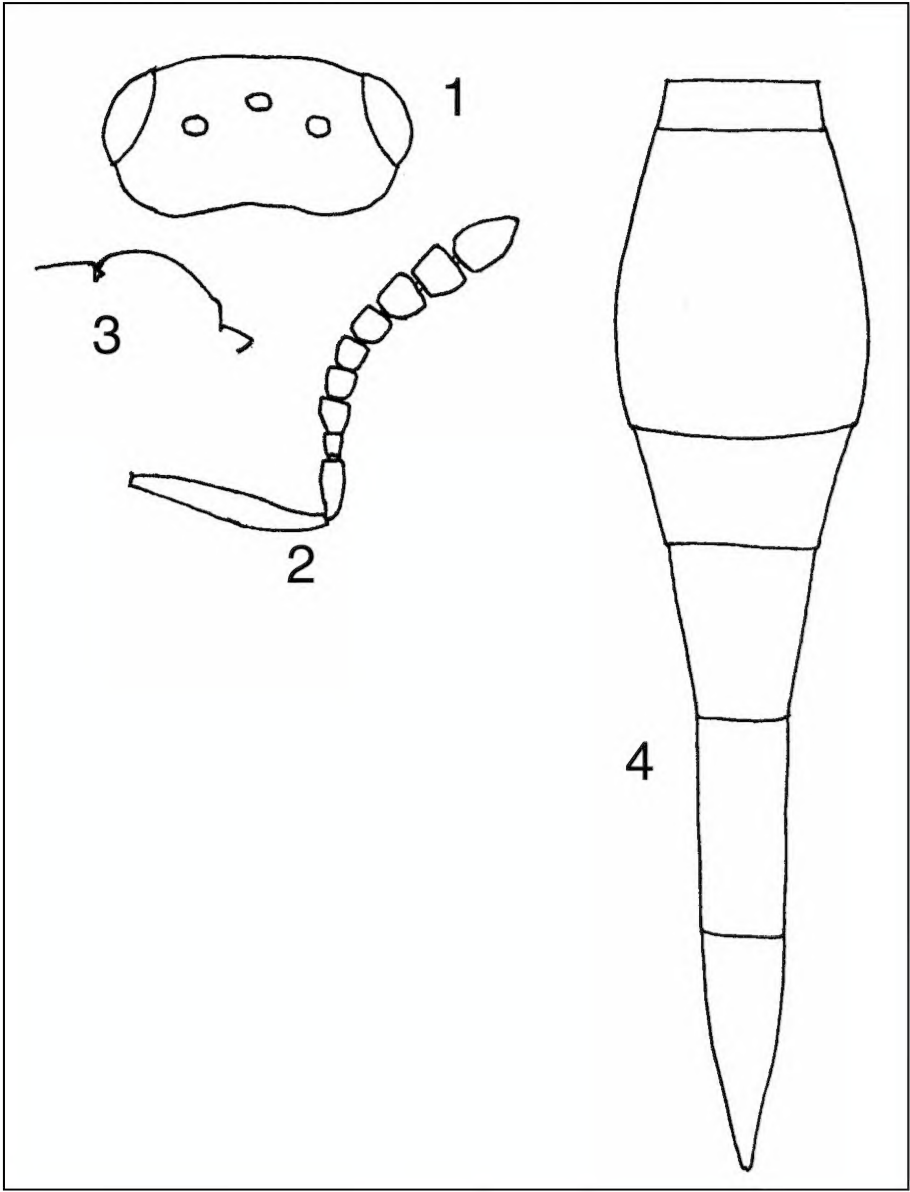


FIGURE 4. *Synopeas erinum* Buhl and O'Connor, 2011 (Platygastrinae).

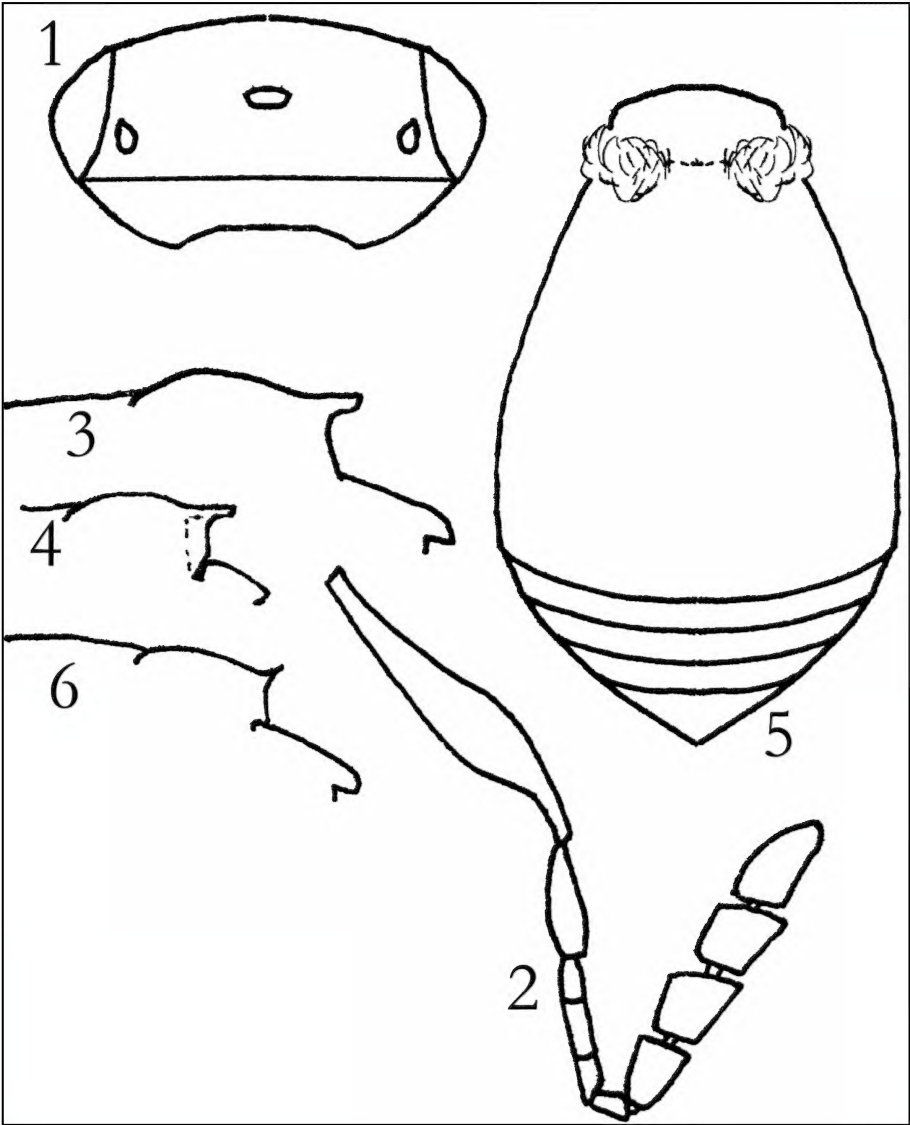


FIGURE 5. *Synopeas hibernicum* Buhl and O'Connor, 2009 (Platygastrinae).

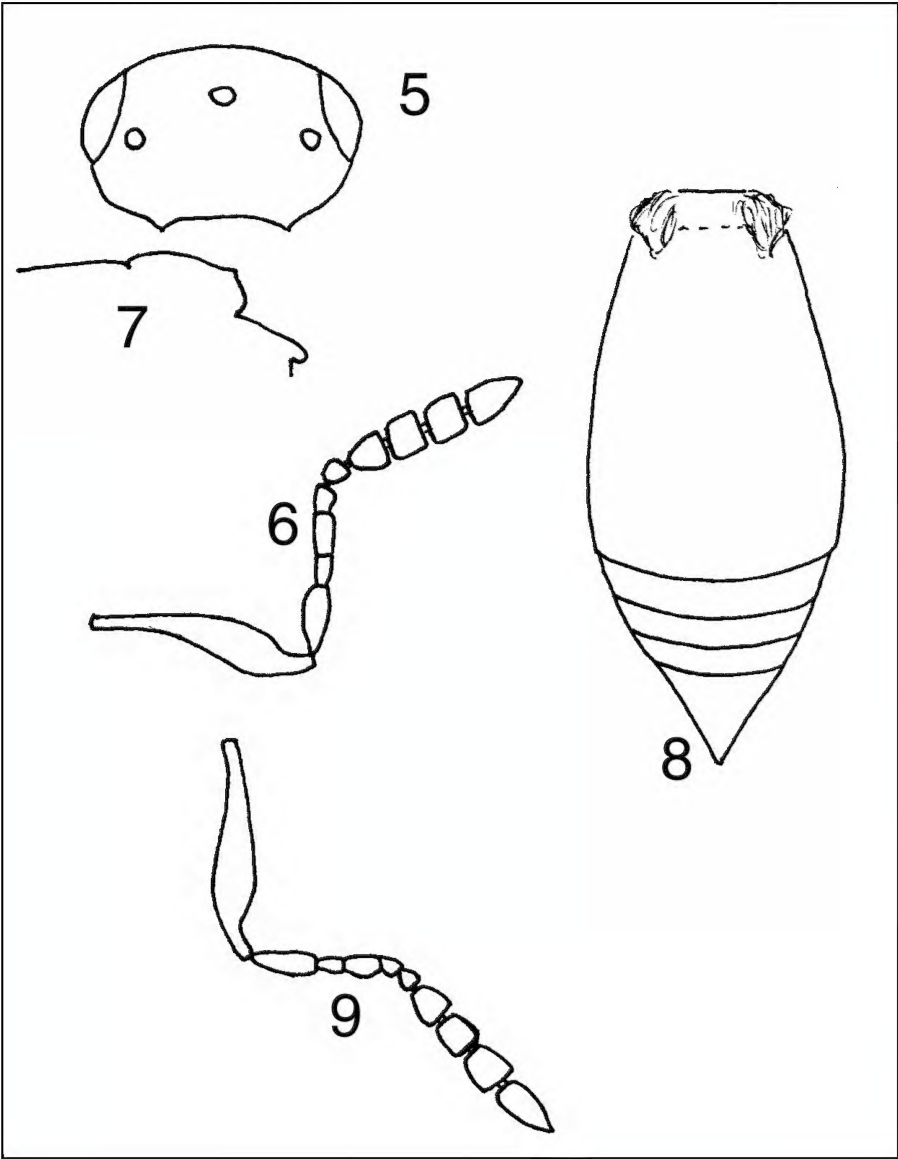


FIGURE 6. *Inostemma* species (Platygastrinae) <Clé des Hyménoptères www7.inra.fr> © INRA, Paris.

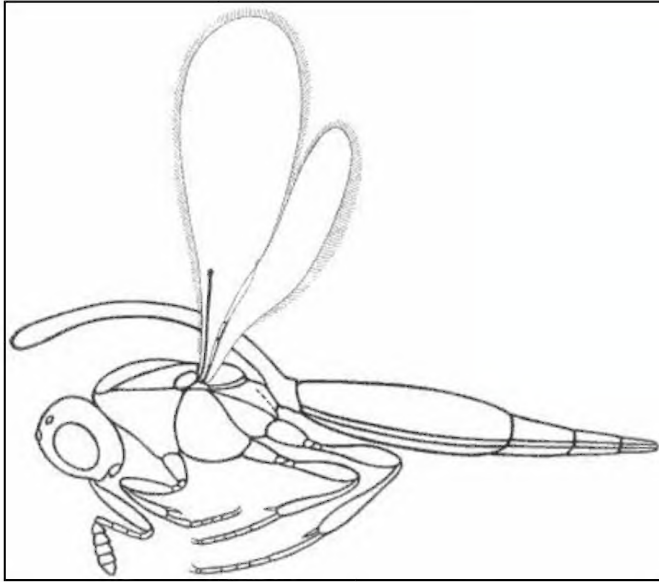


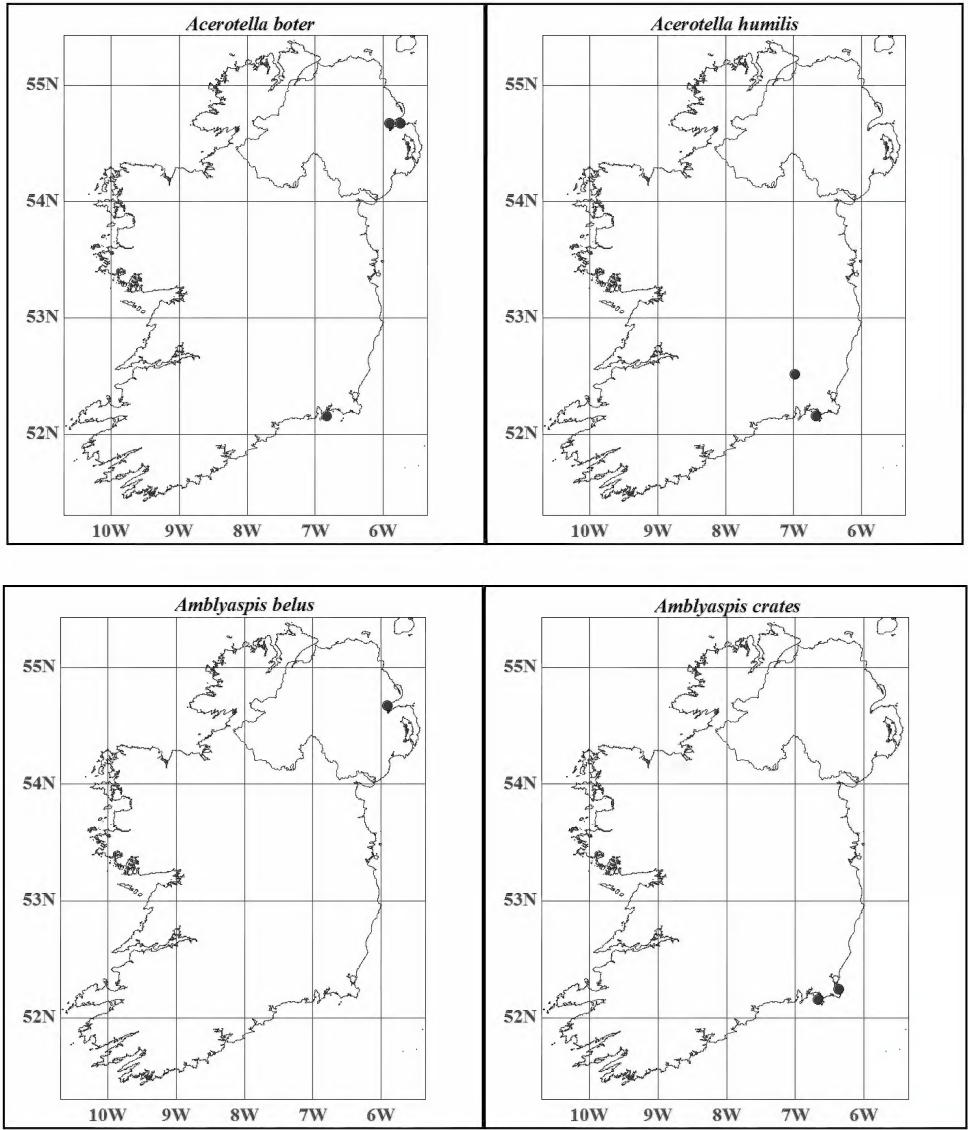
FIGURE 7. *Allotropa* species (Sceliotrachelinae) © Ohio State University (Triplehorn Insect Collection).



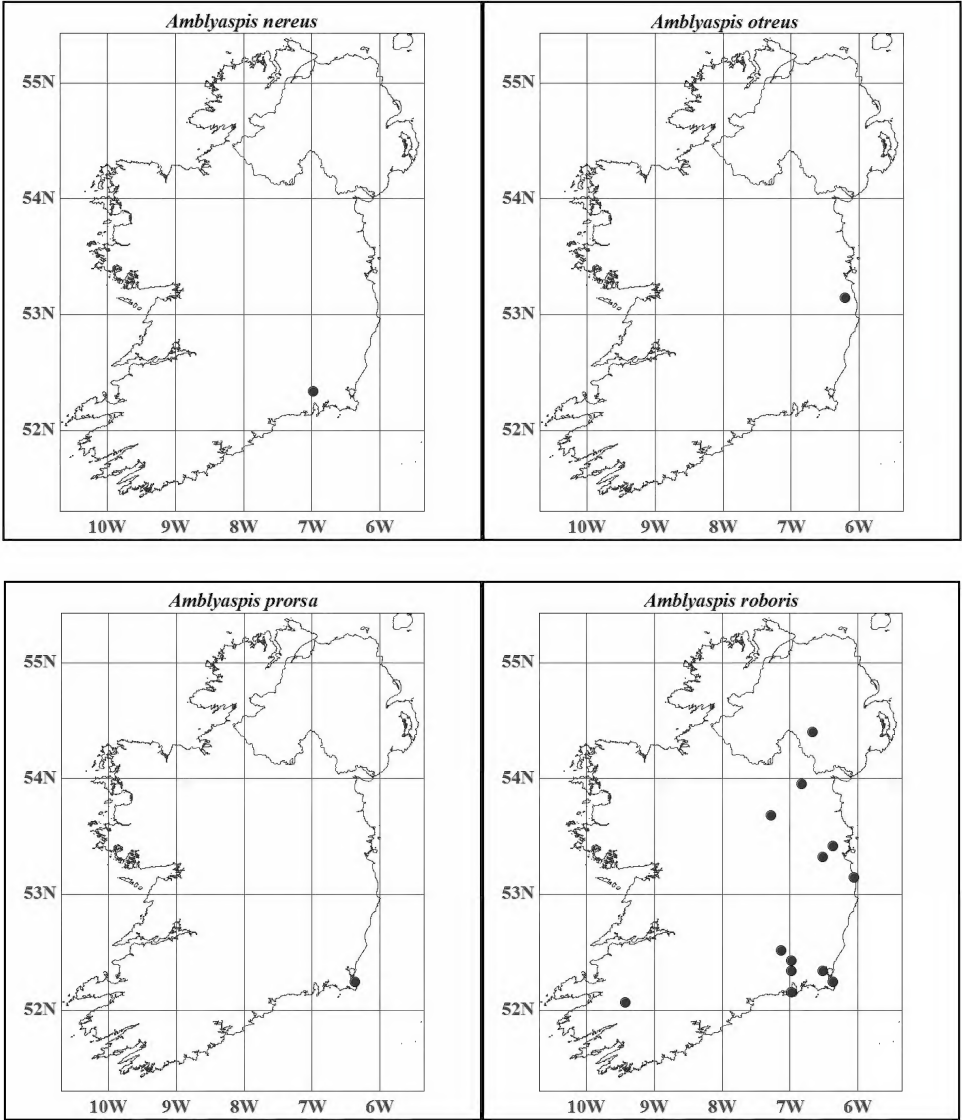
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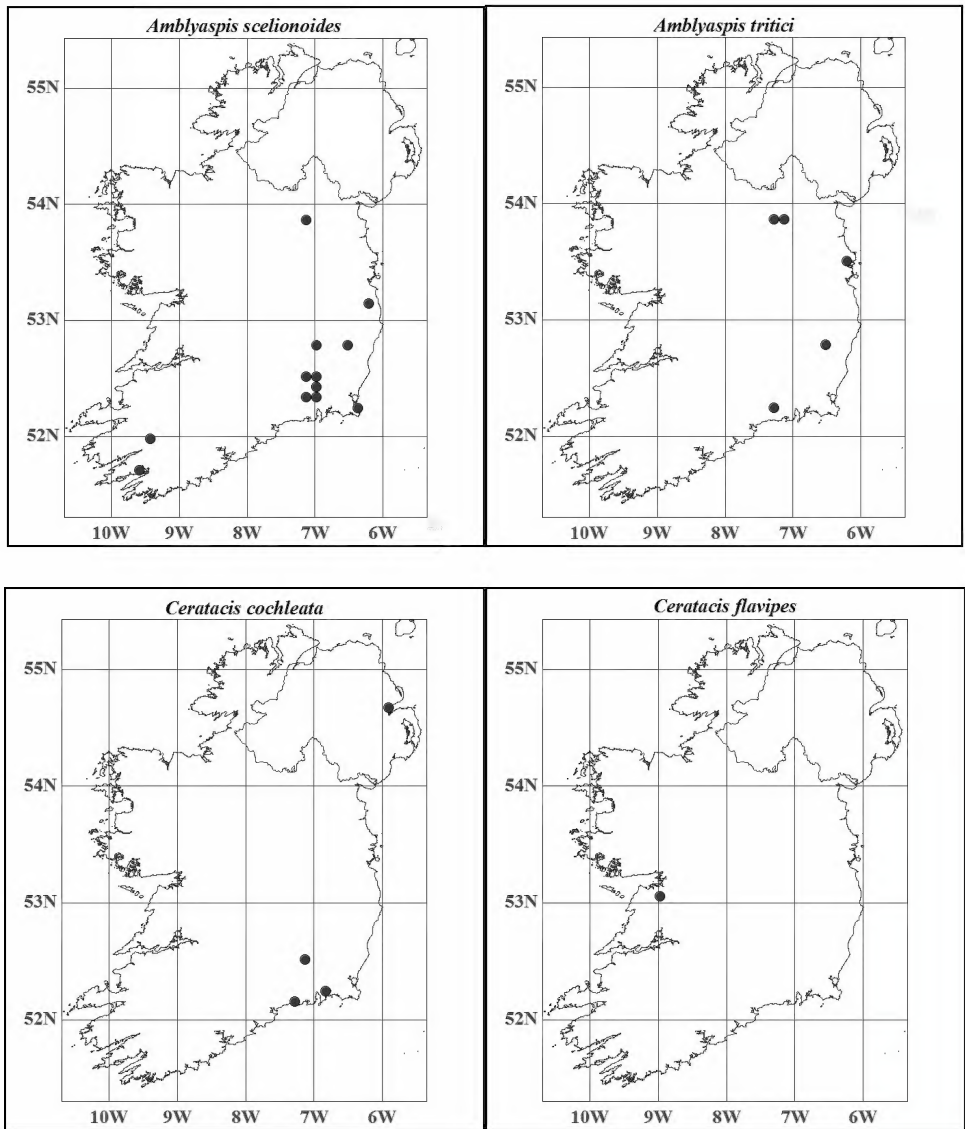
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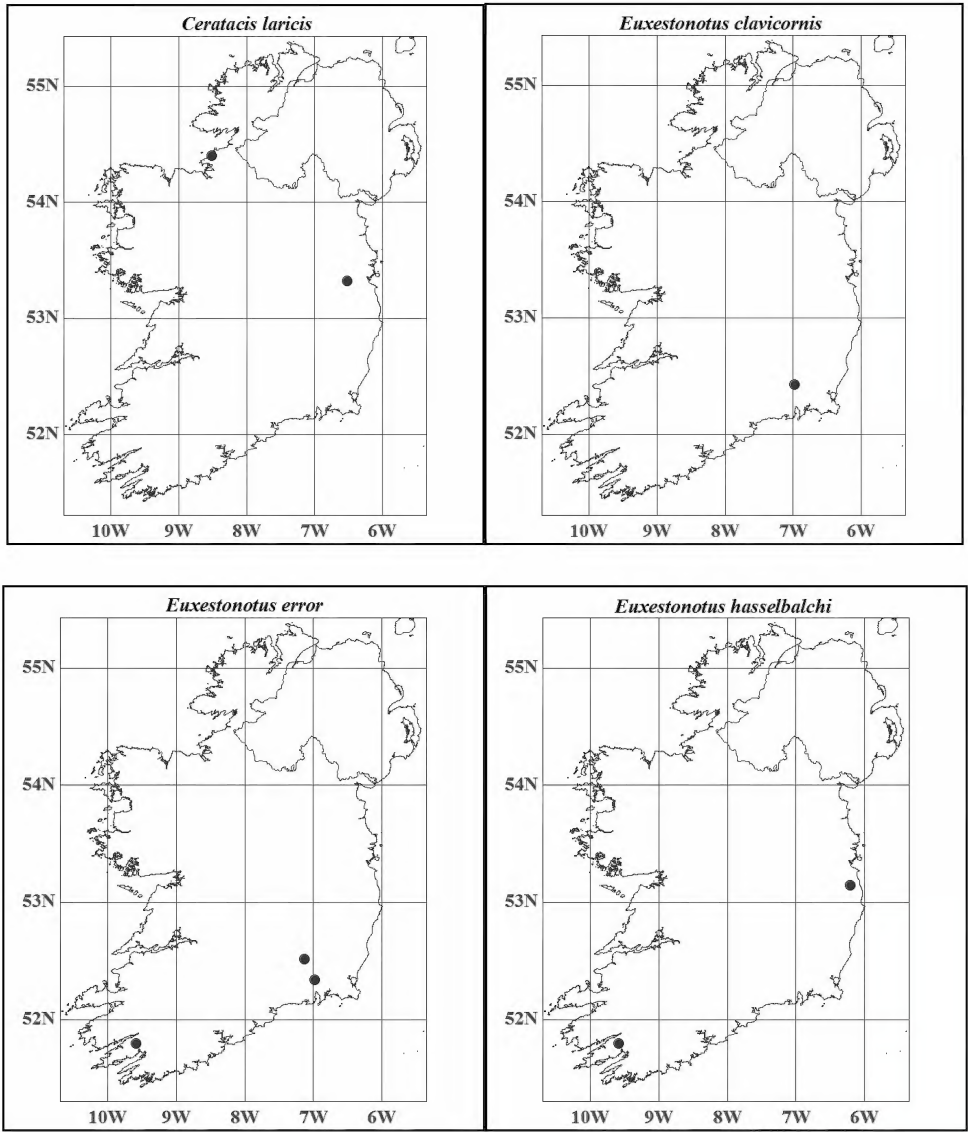
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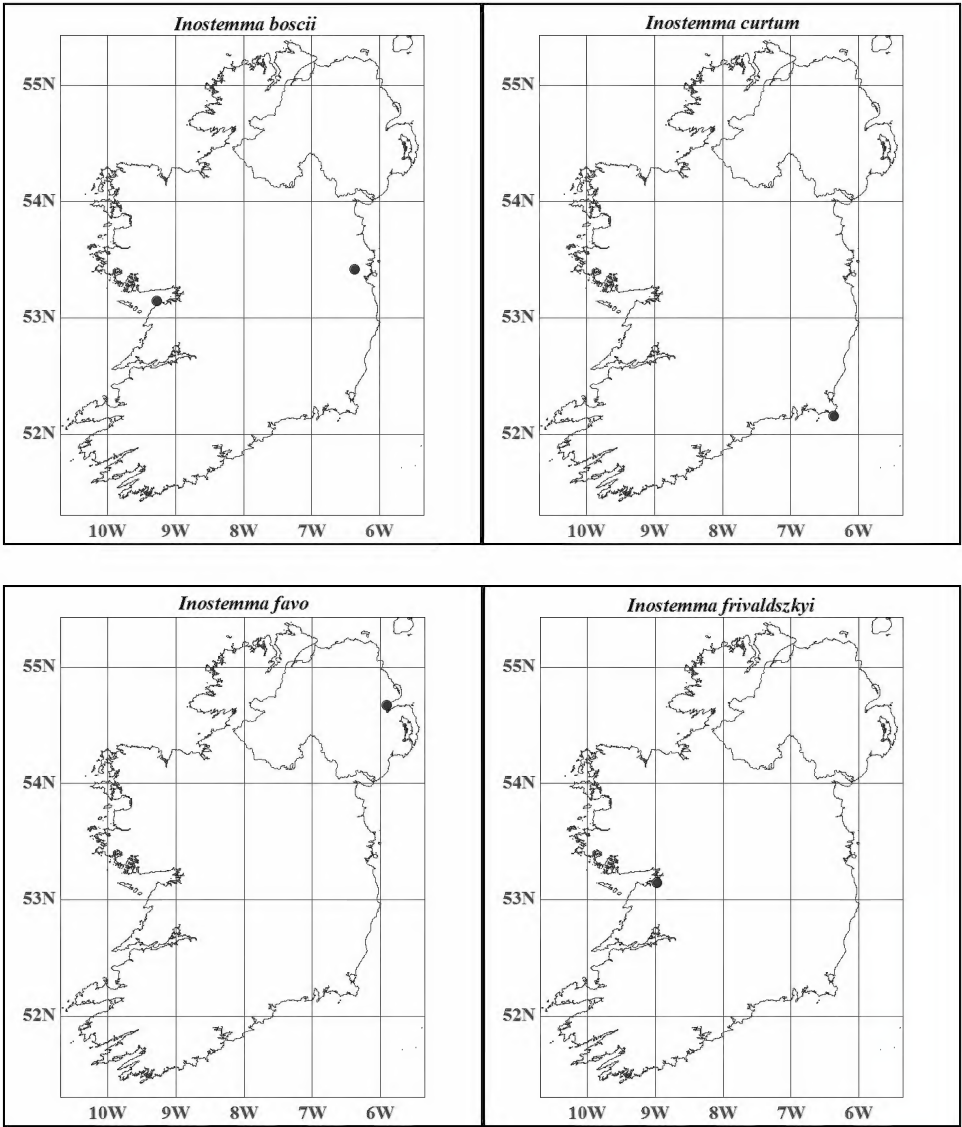
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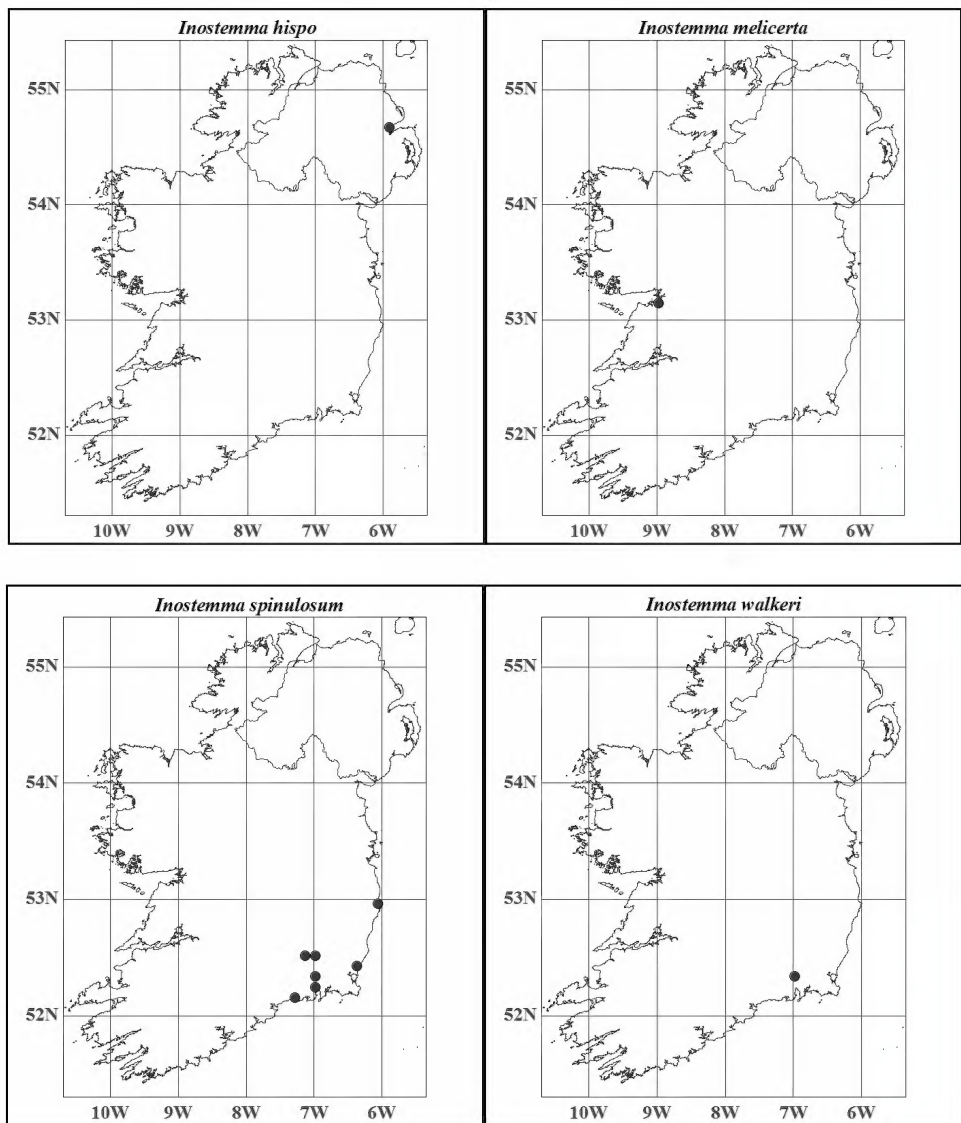
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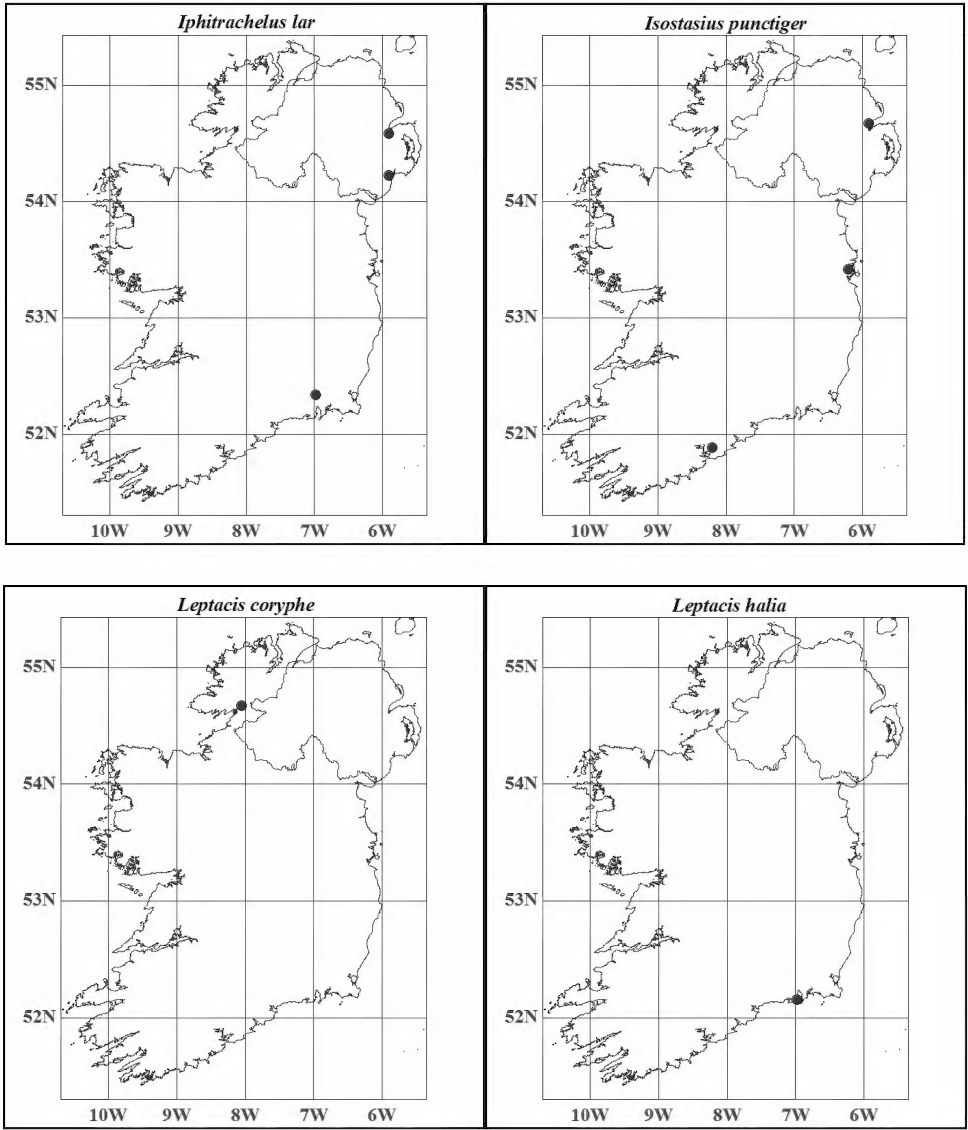
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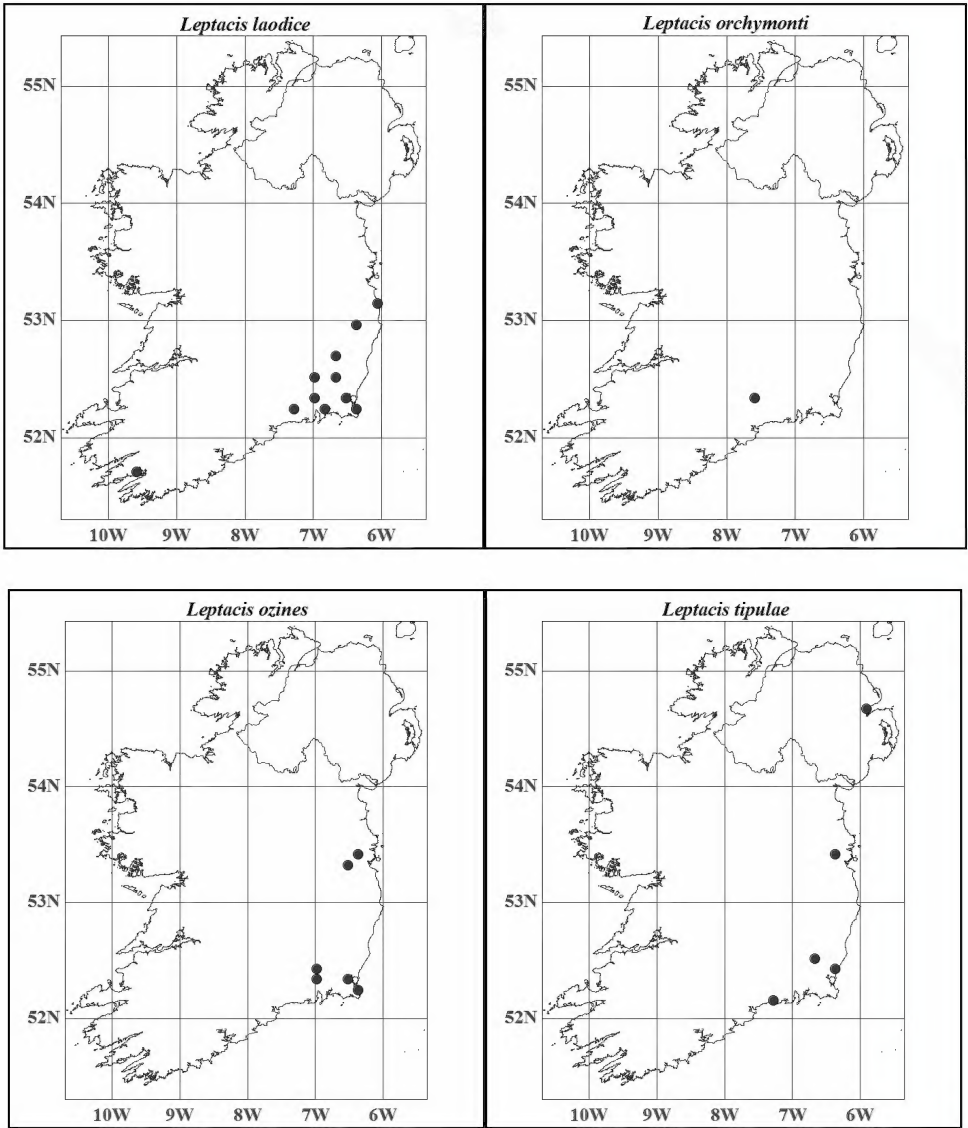
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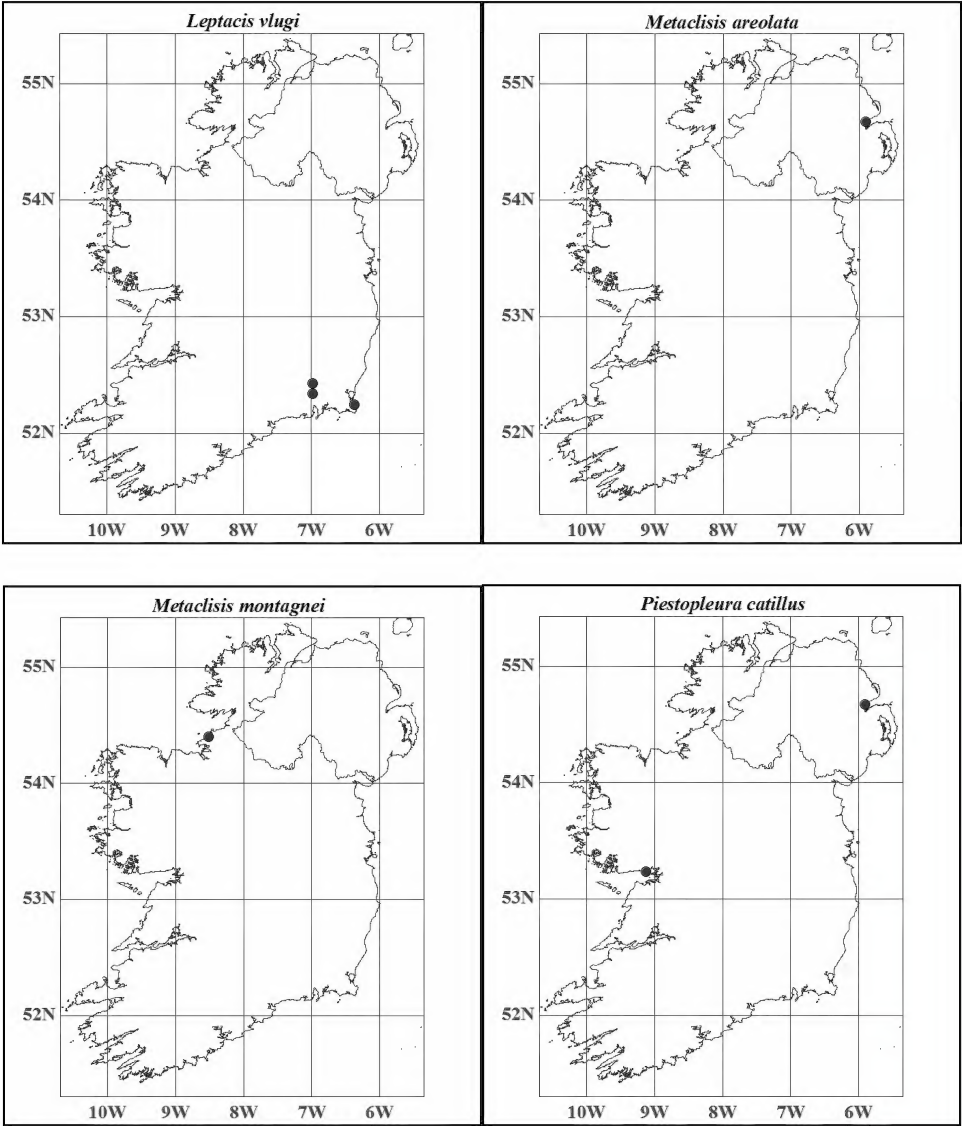
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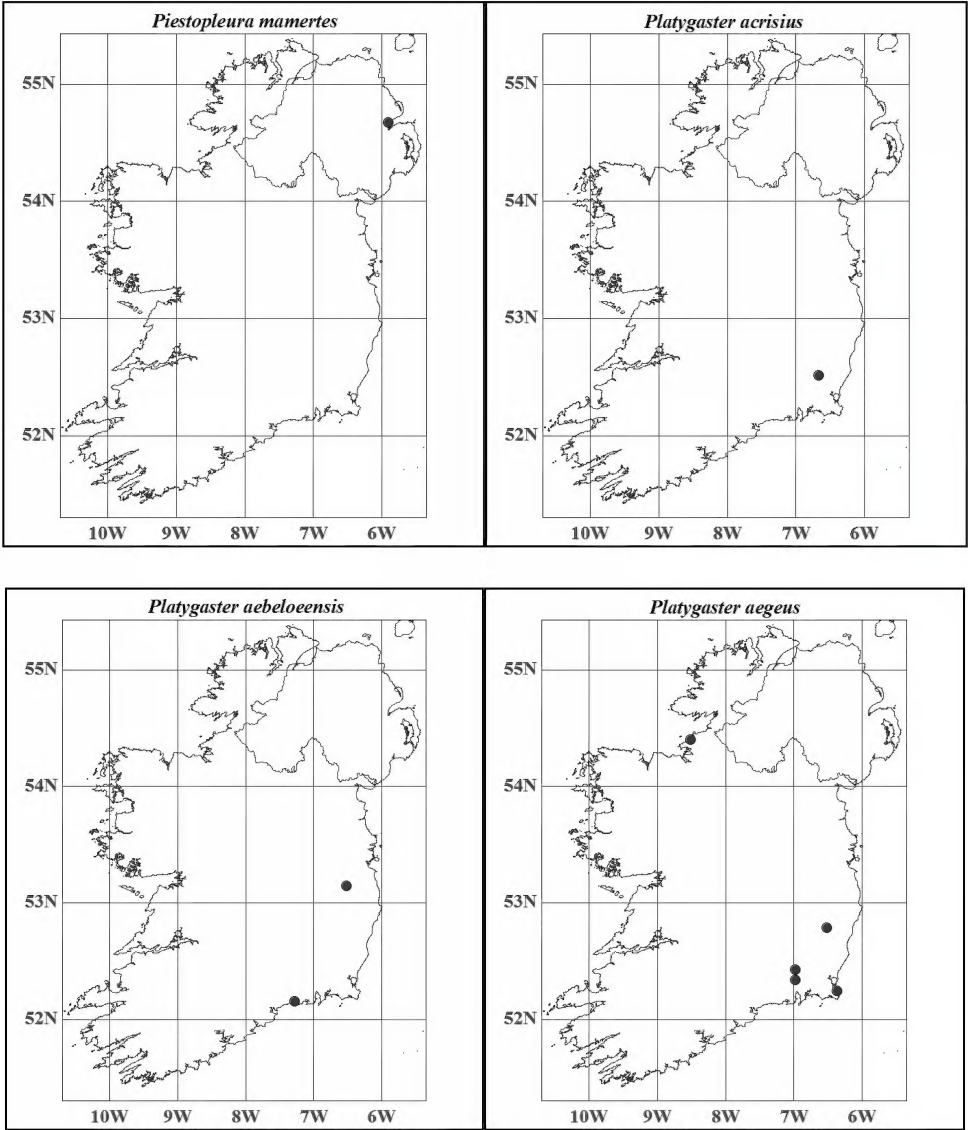
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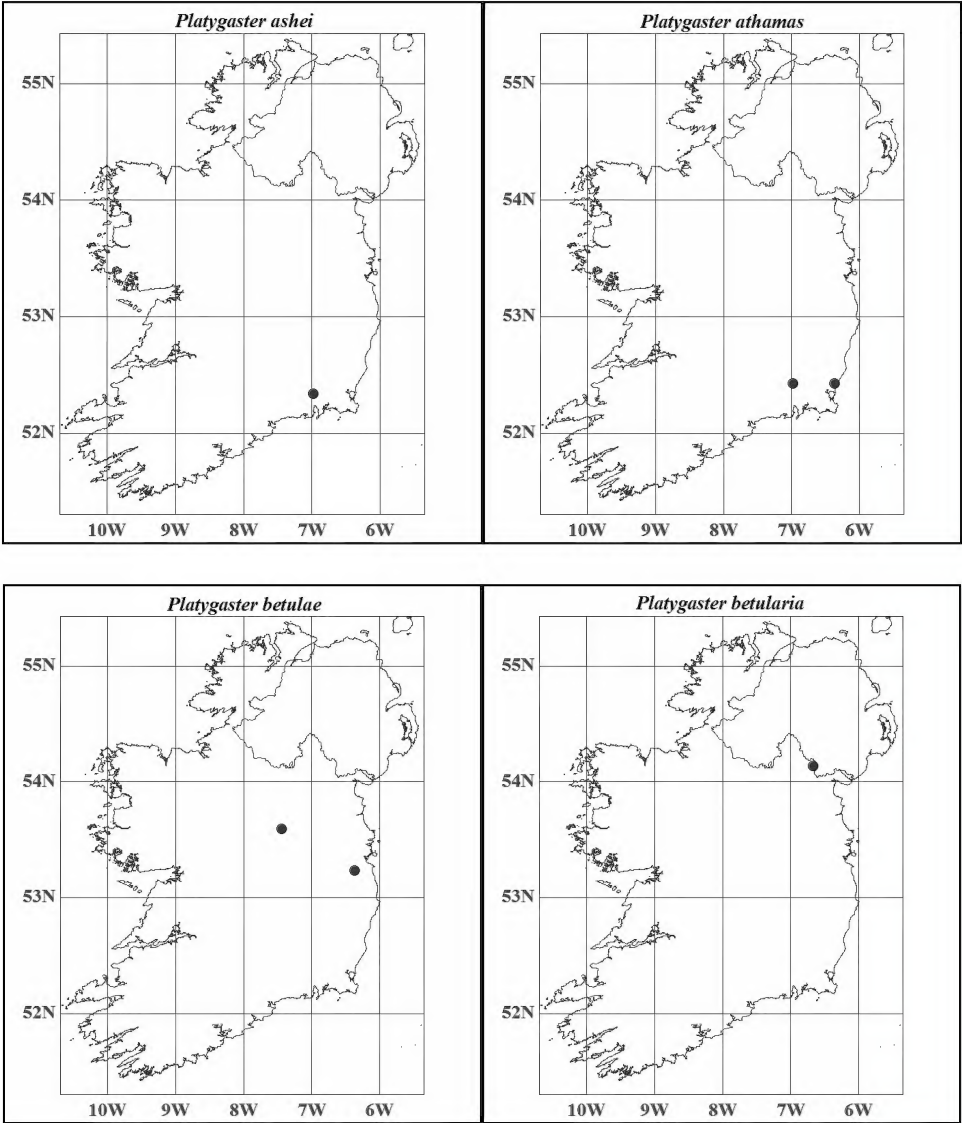
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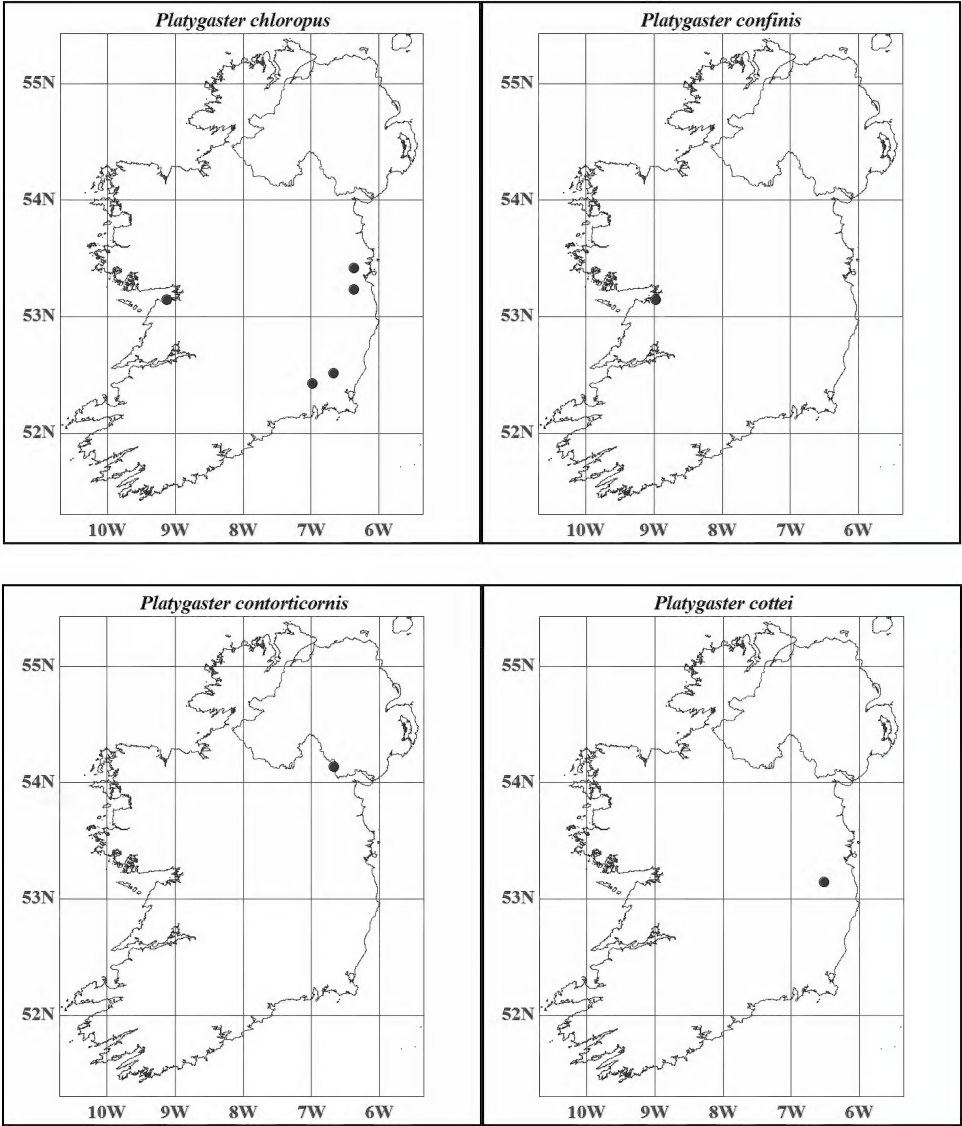
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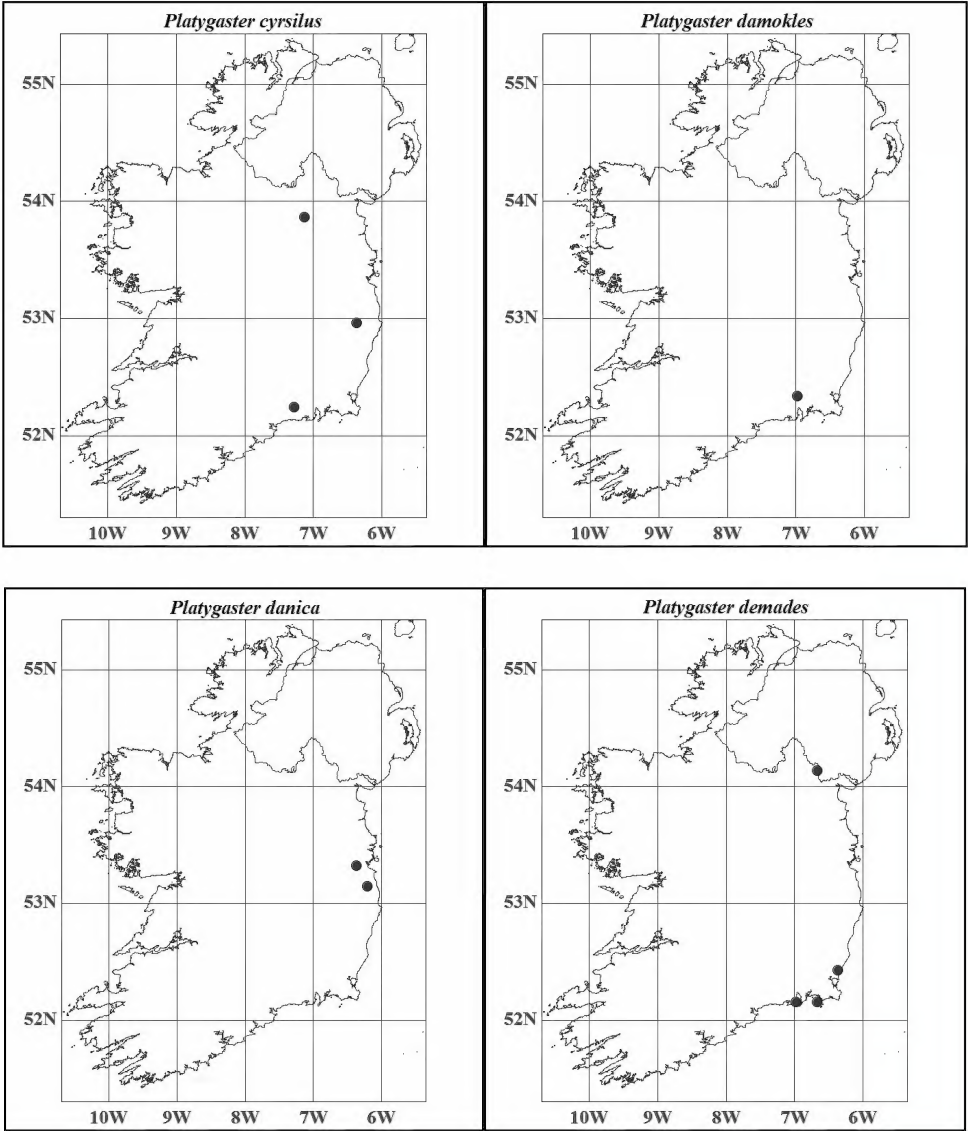
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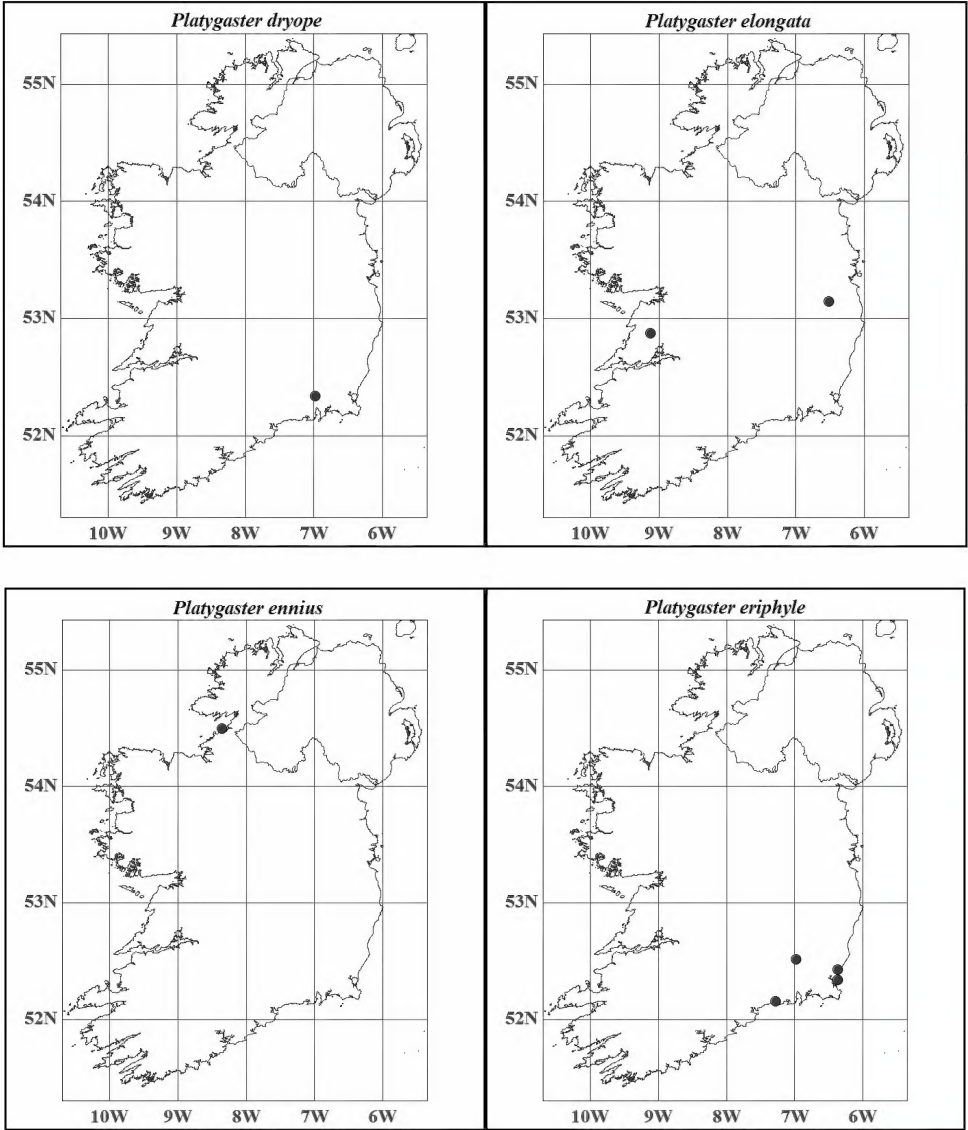
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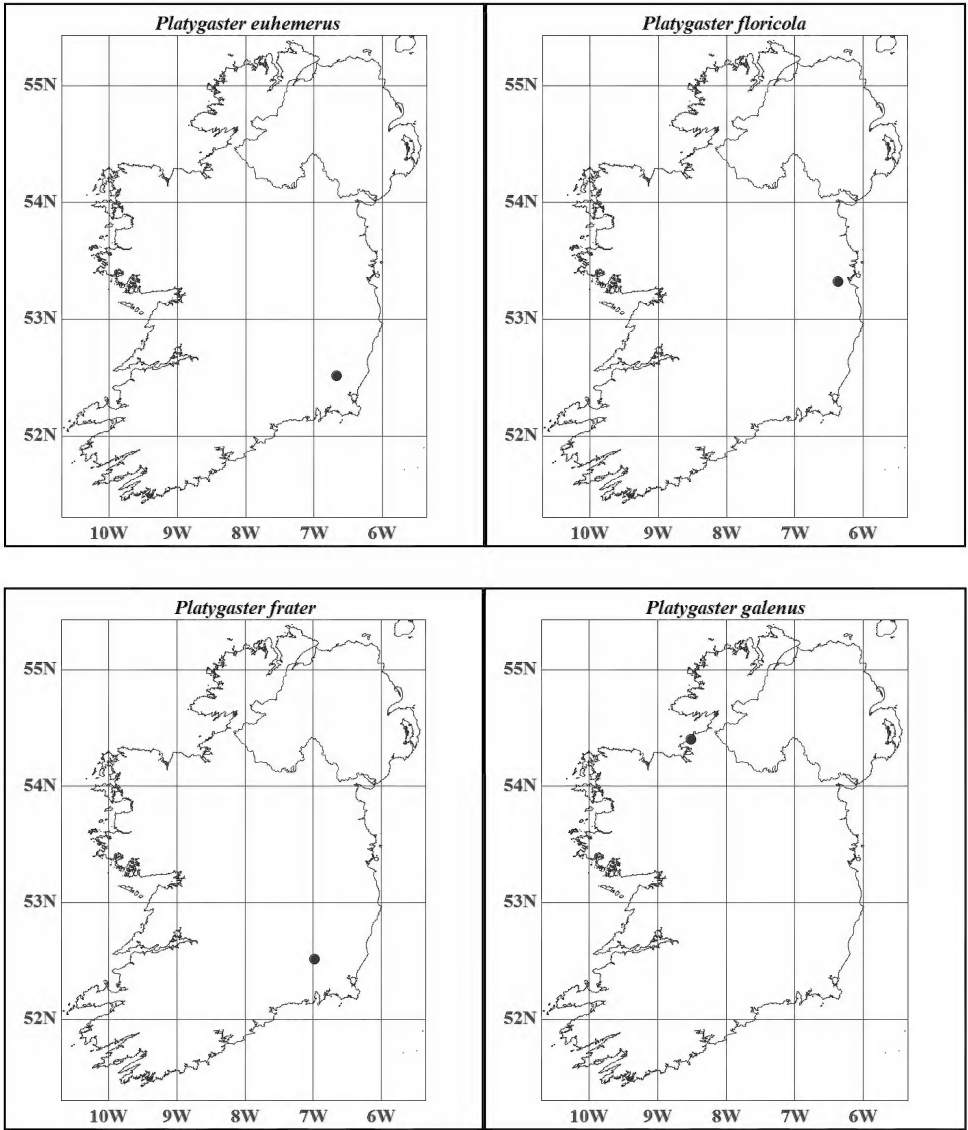
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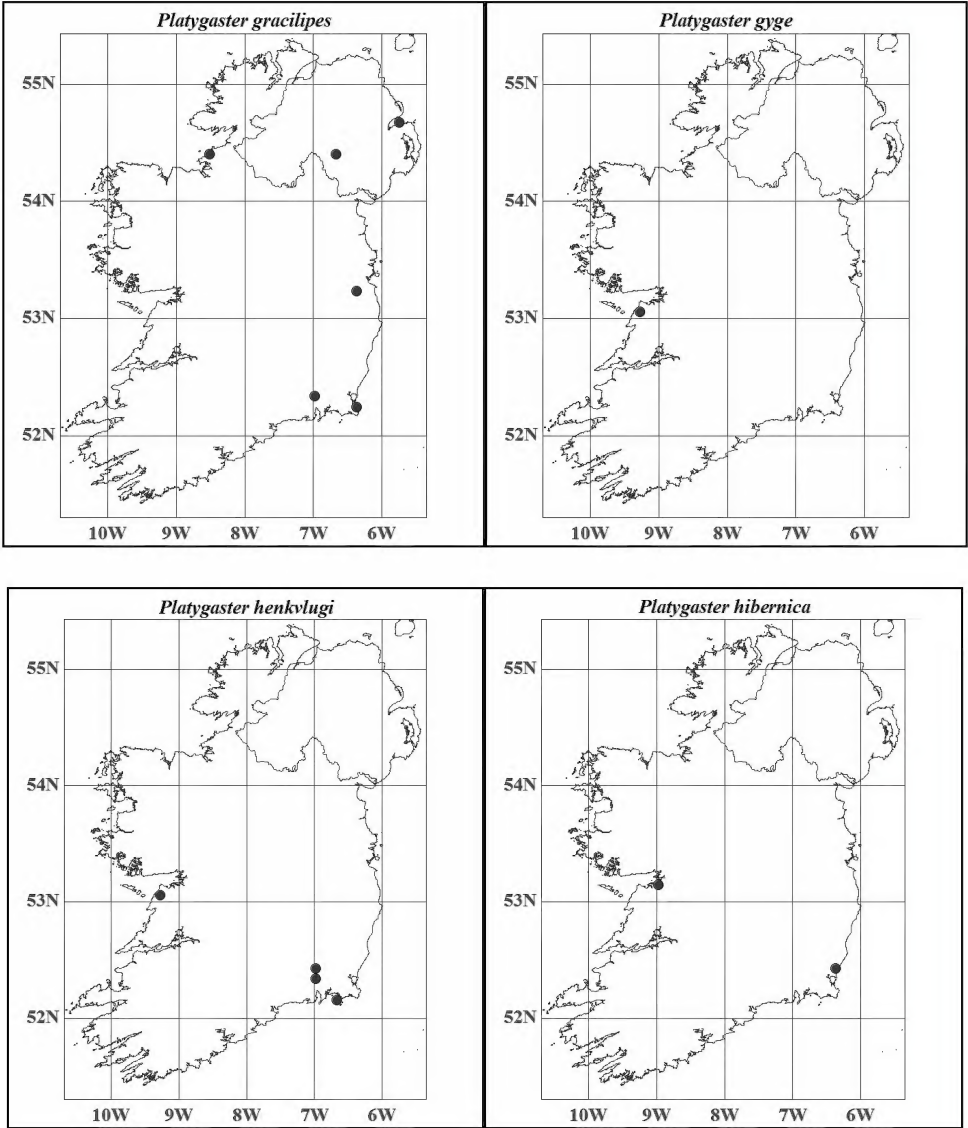
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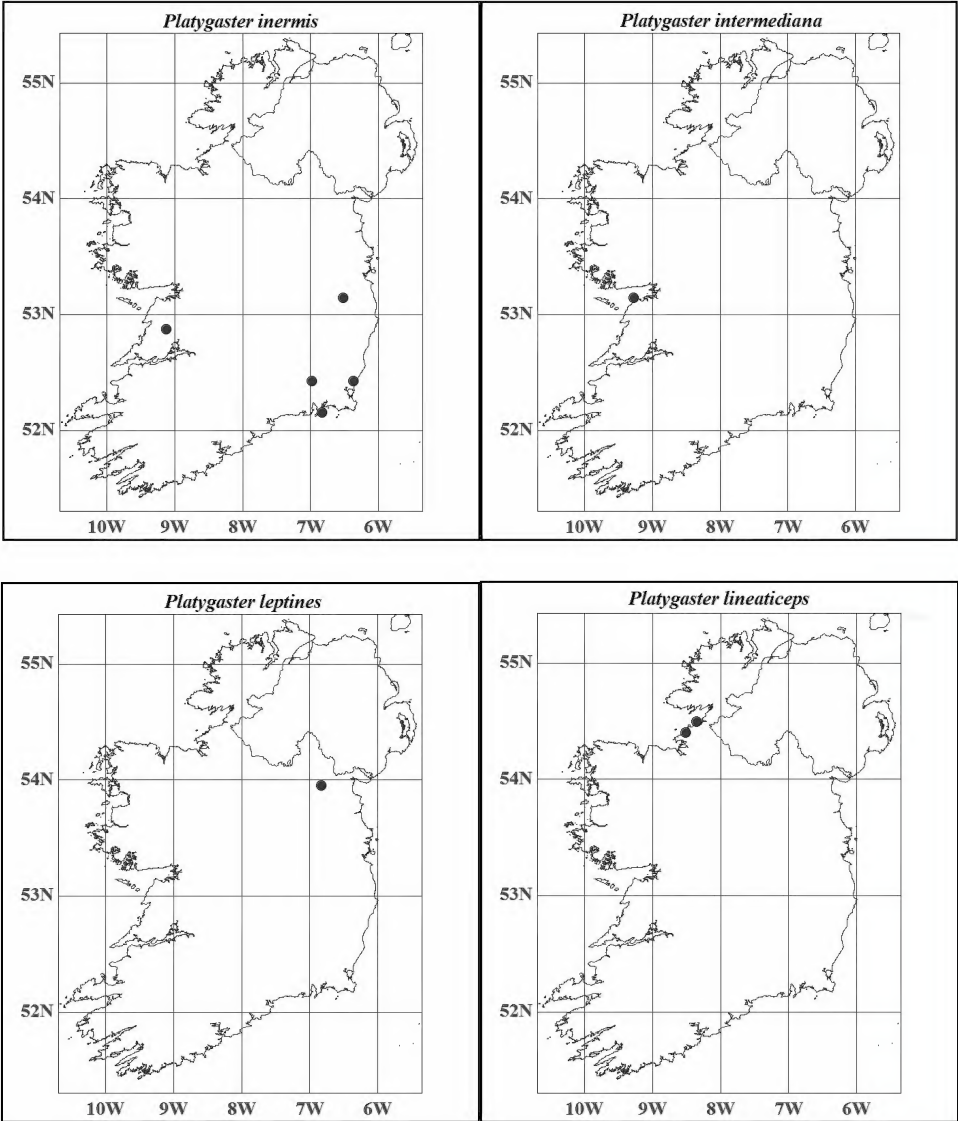
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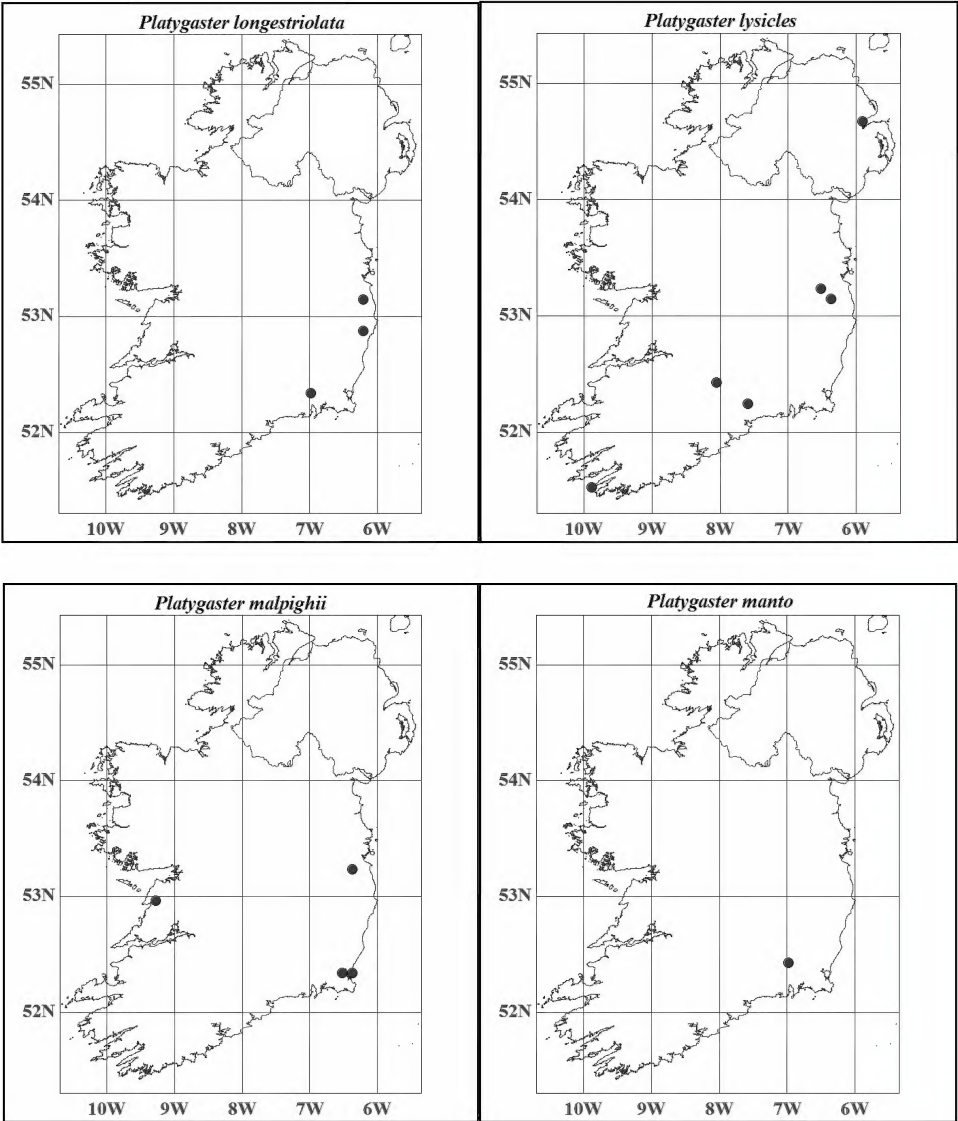
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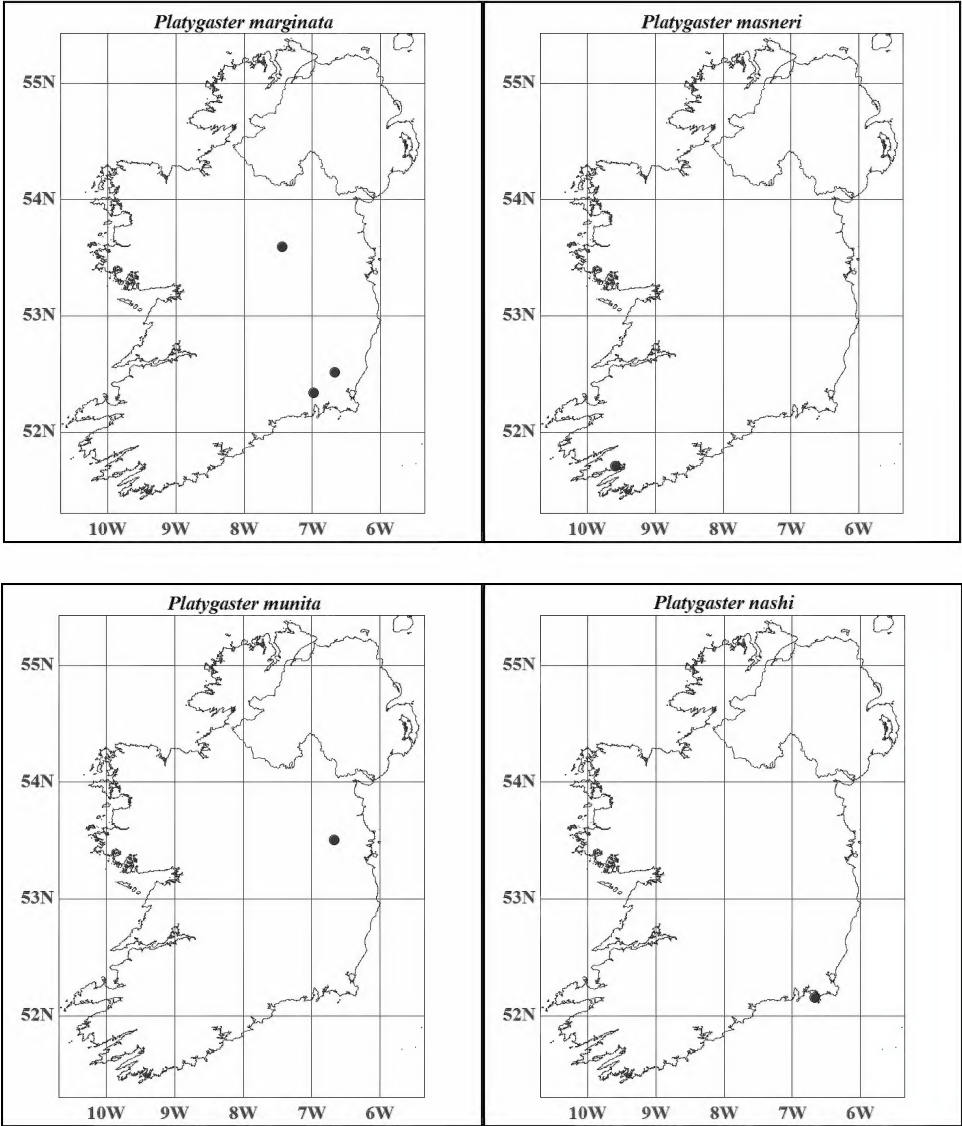
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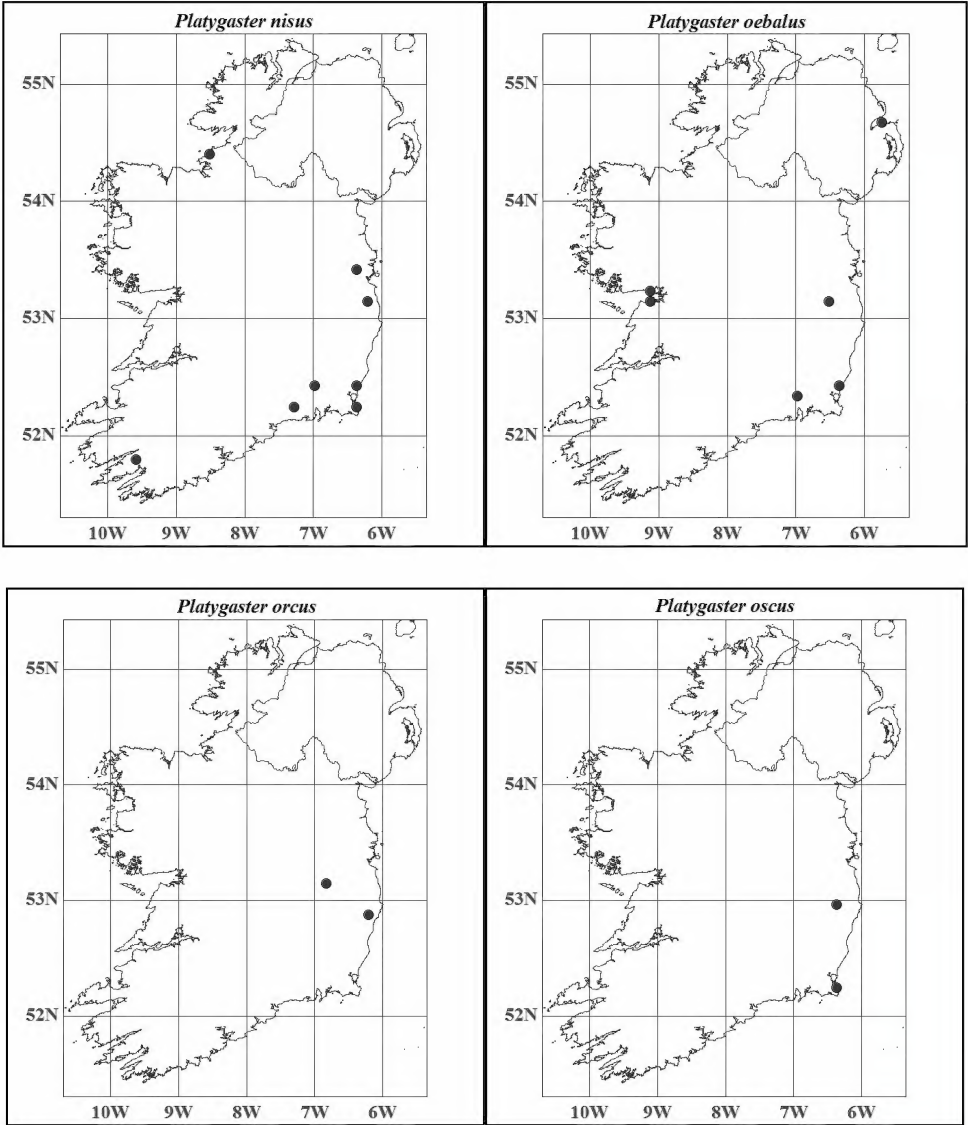
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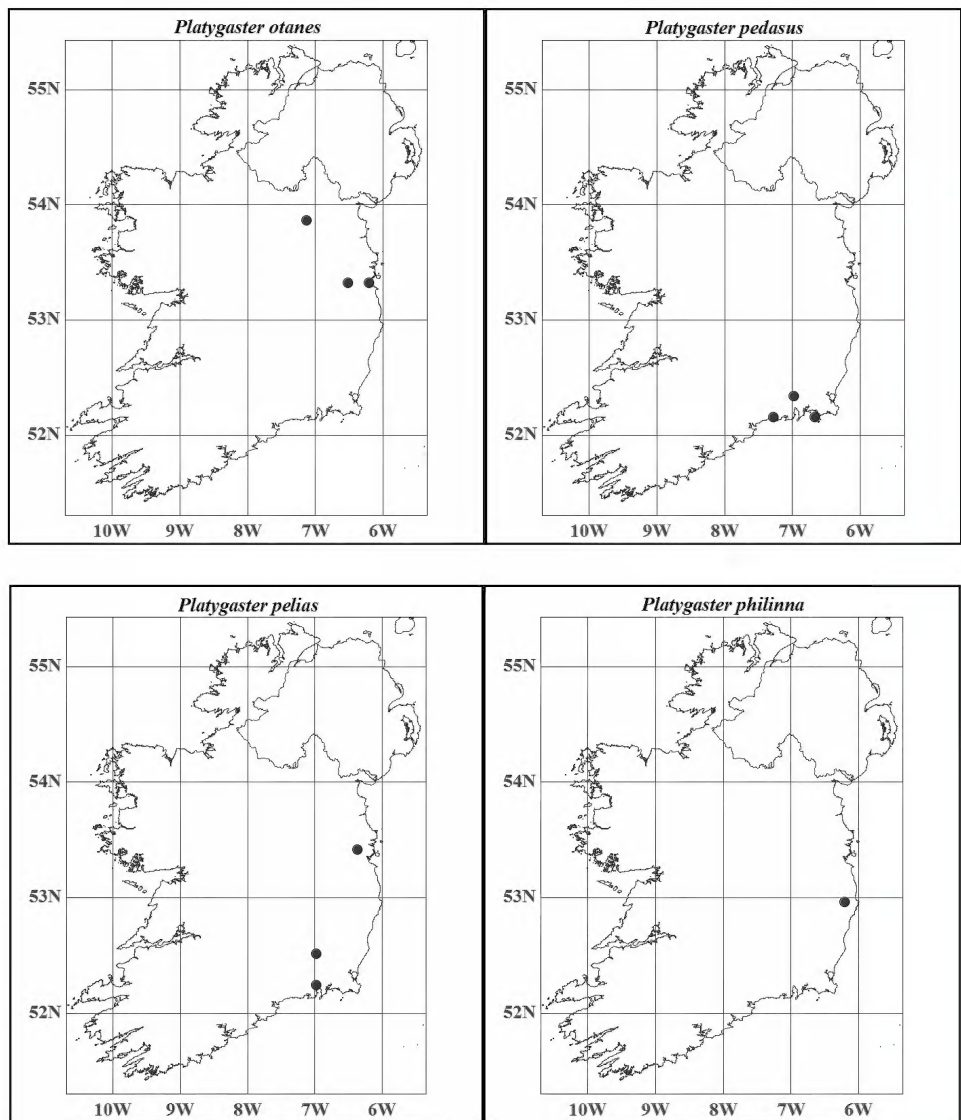
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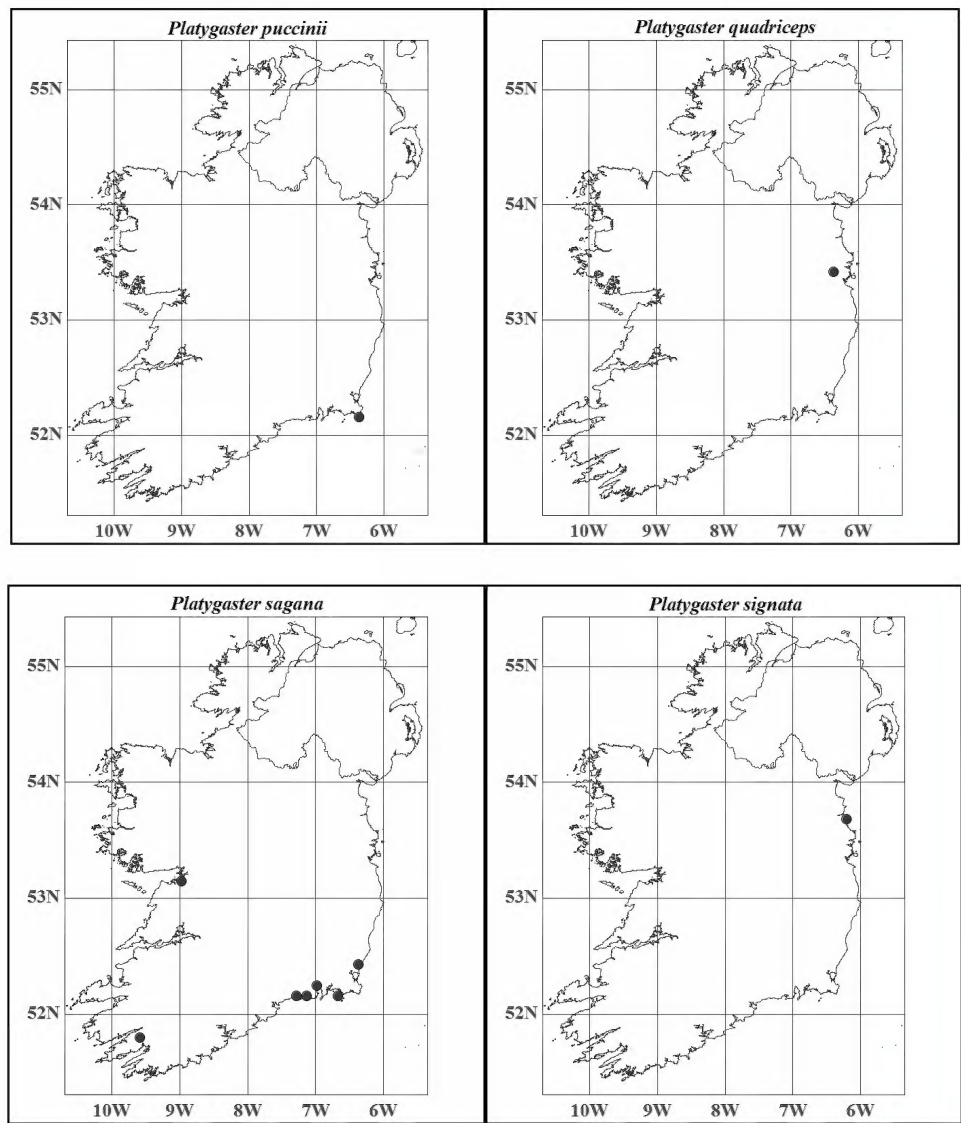
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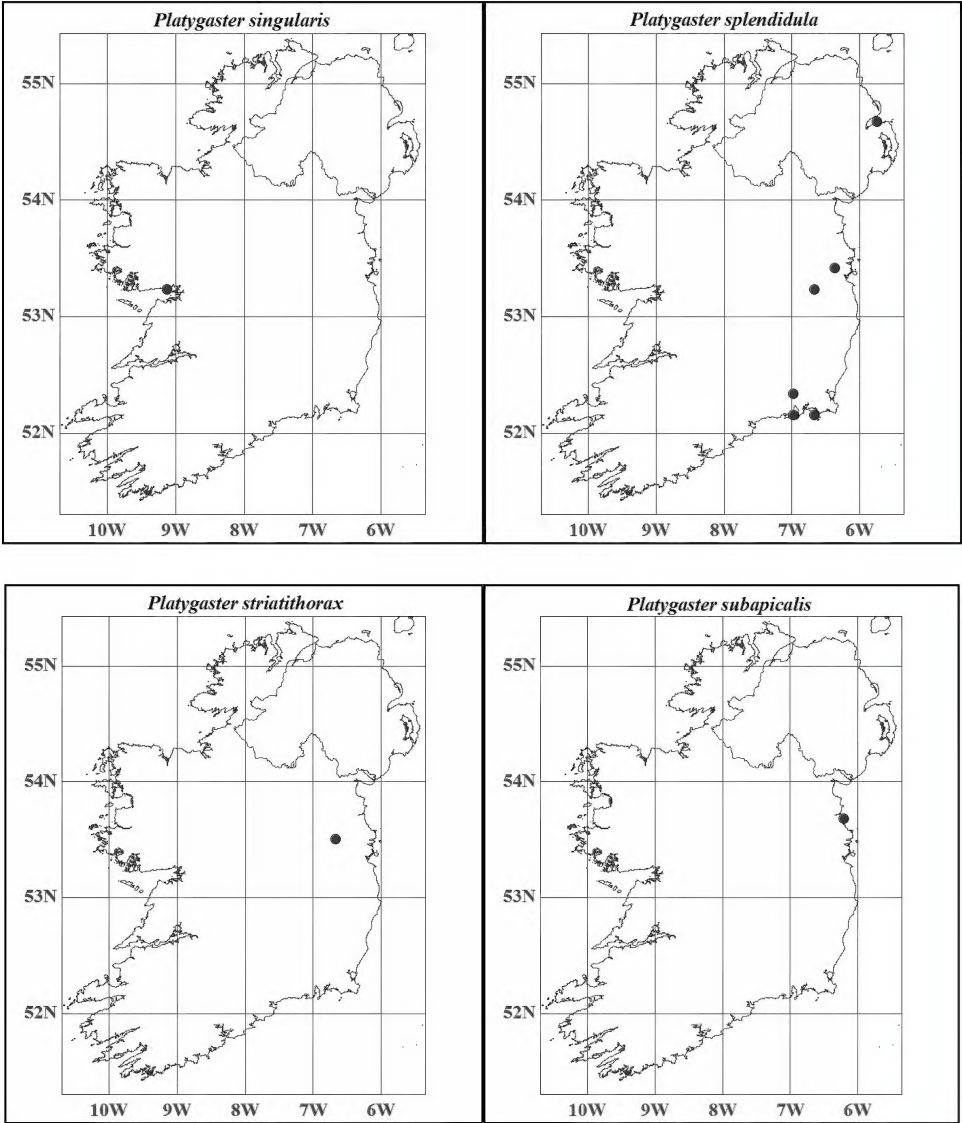
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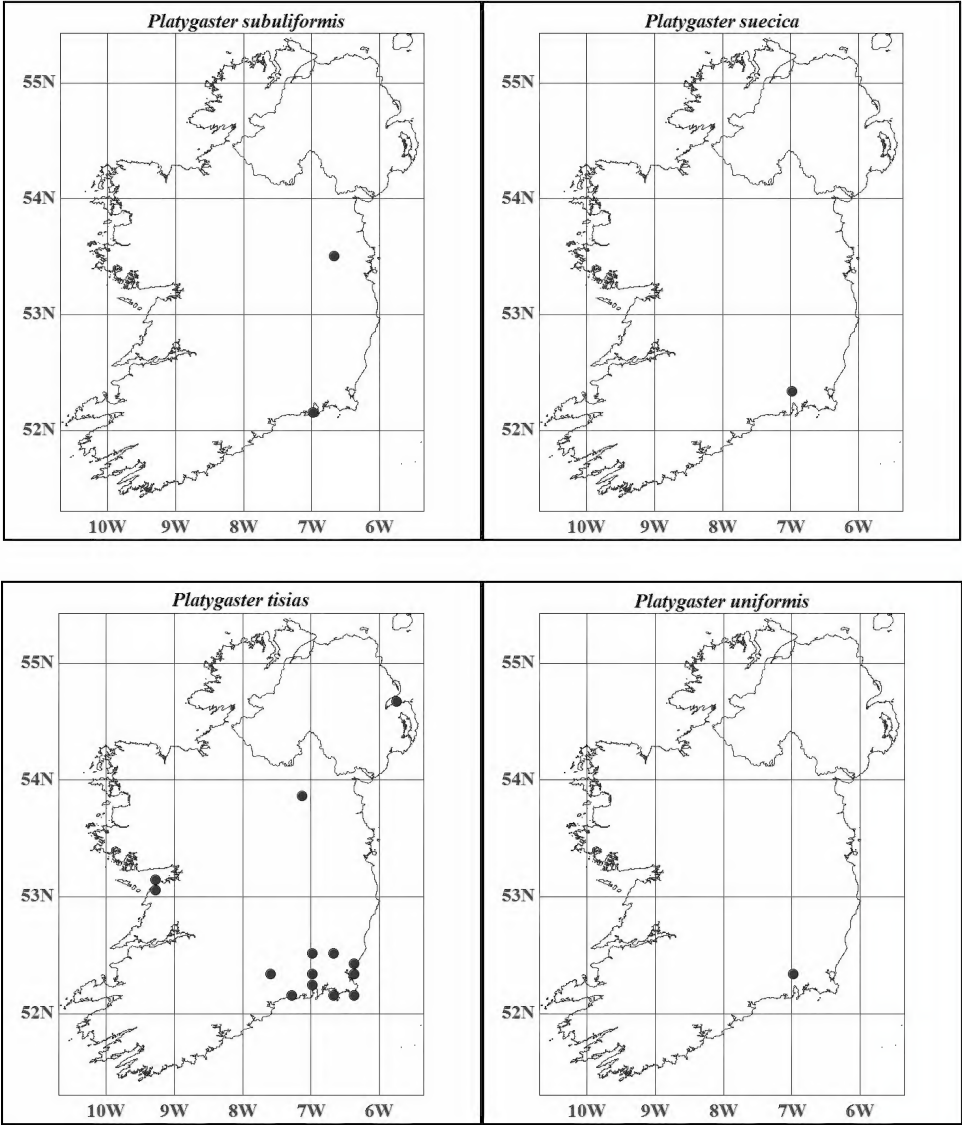
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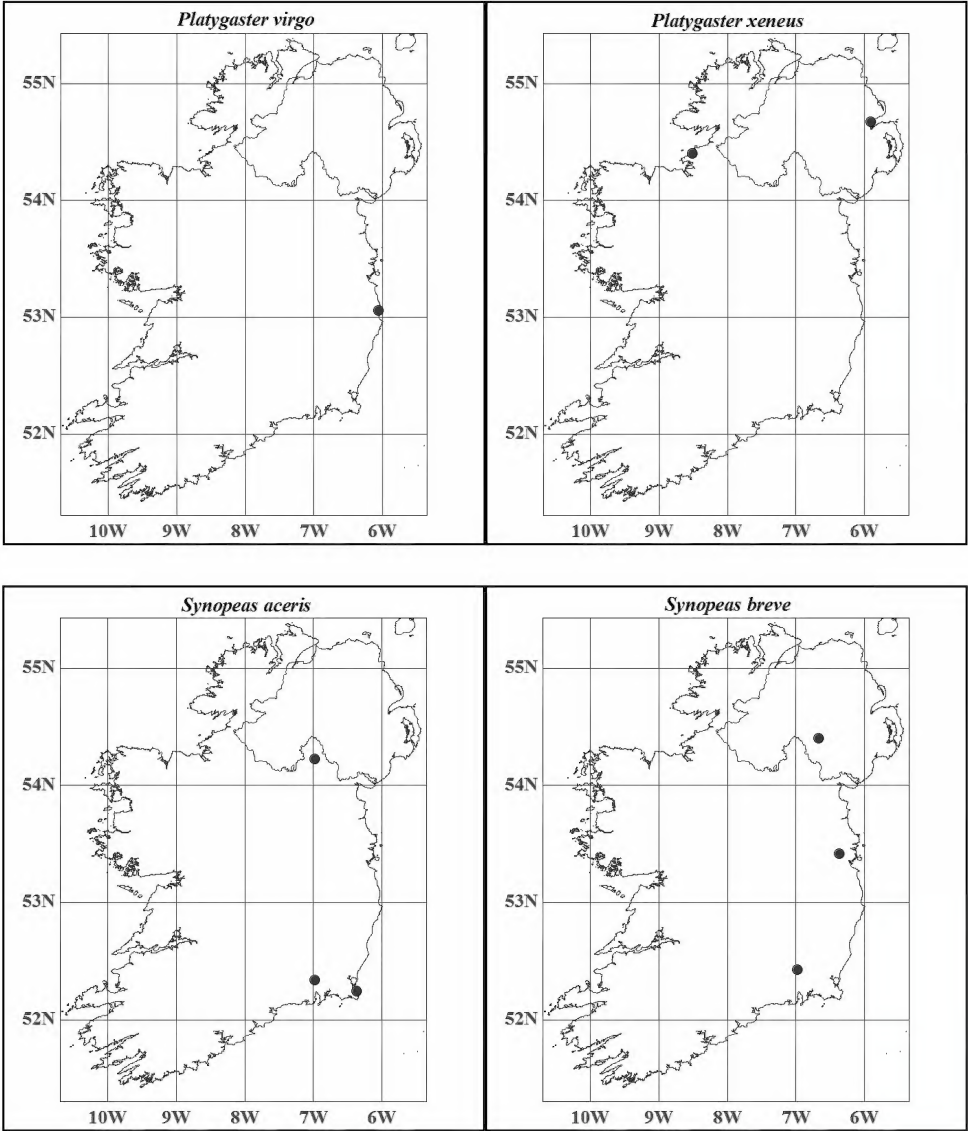
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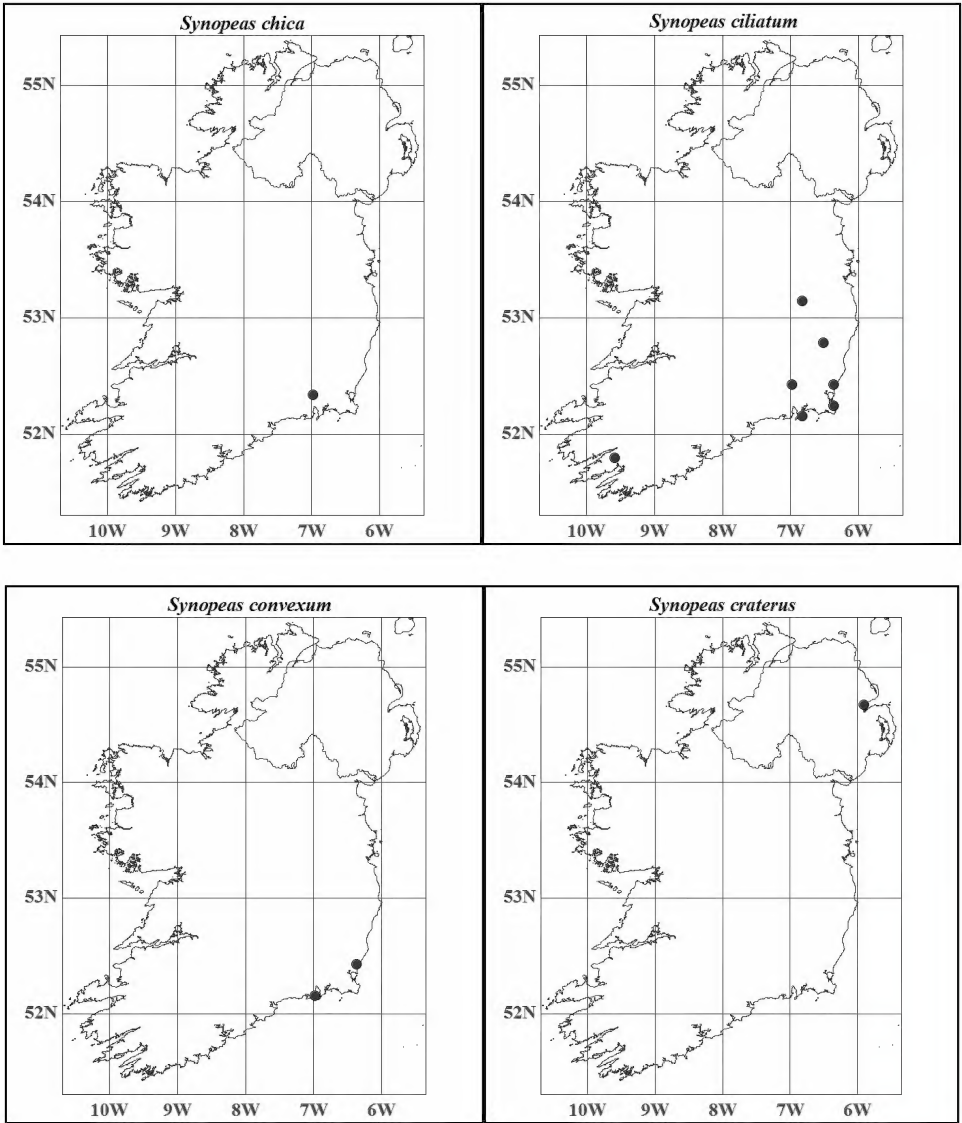
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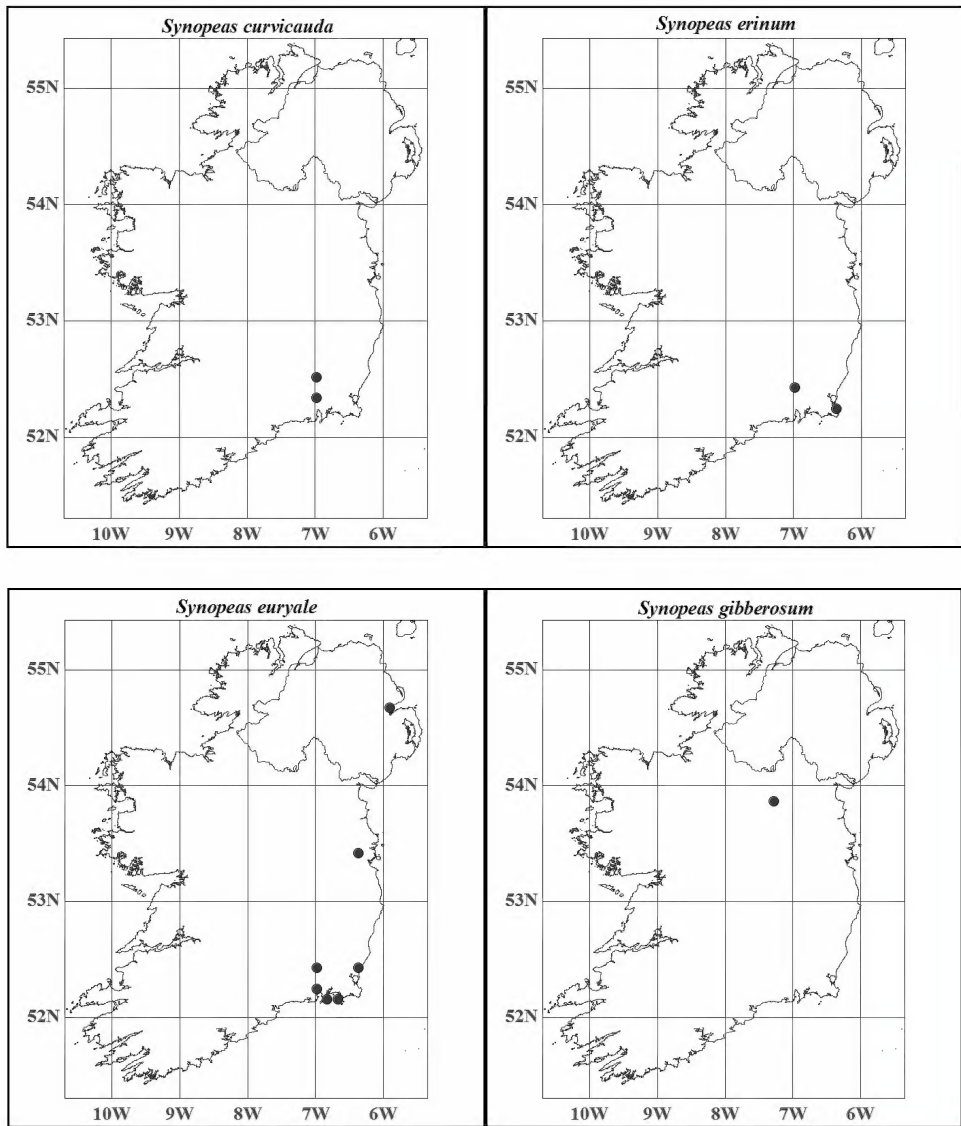
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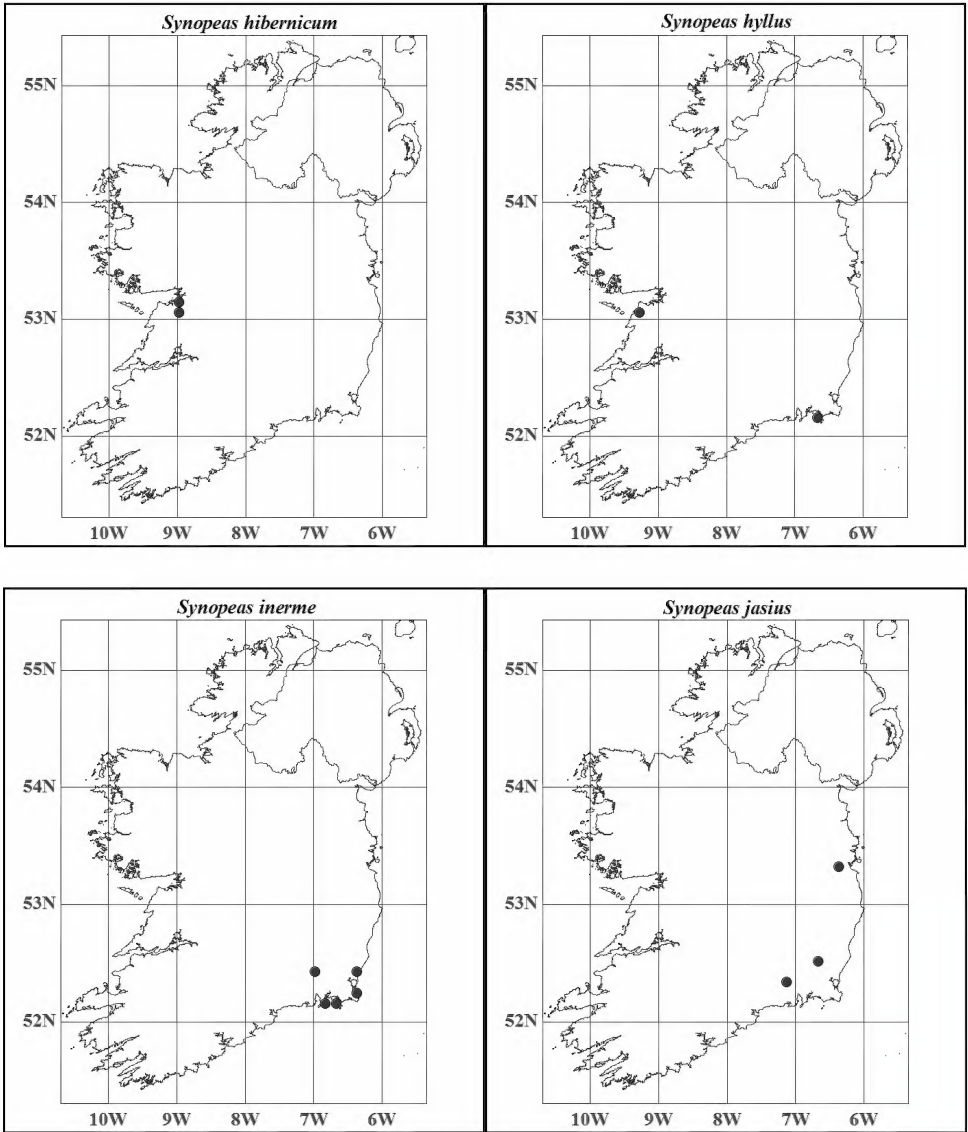
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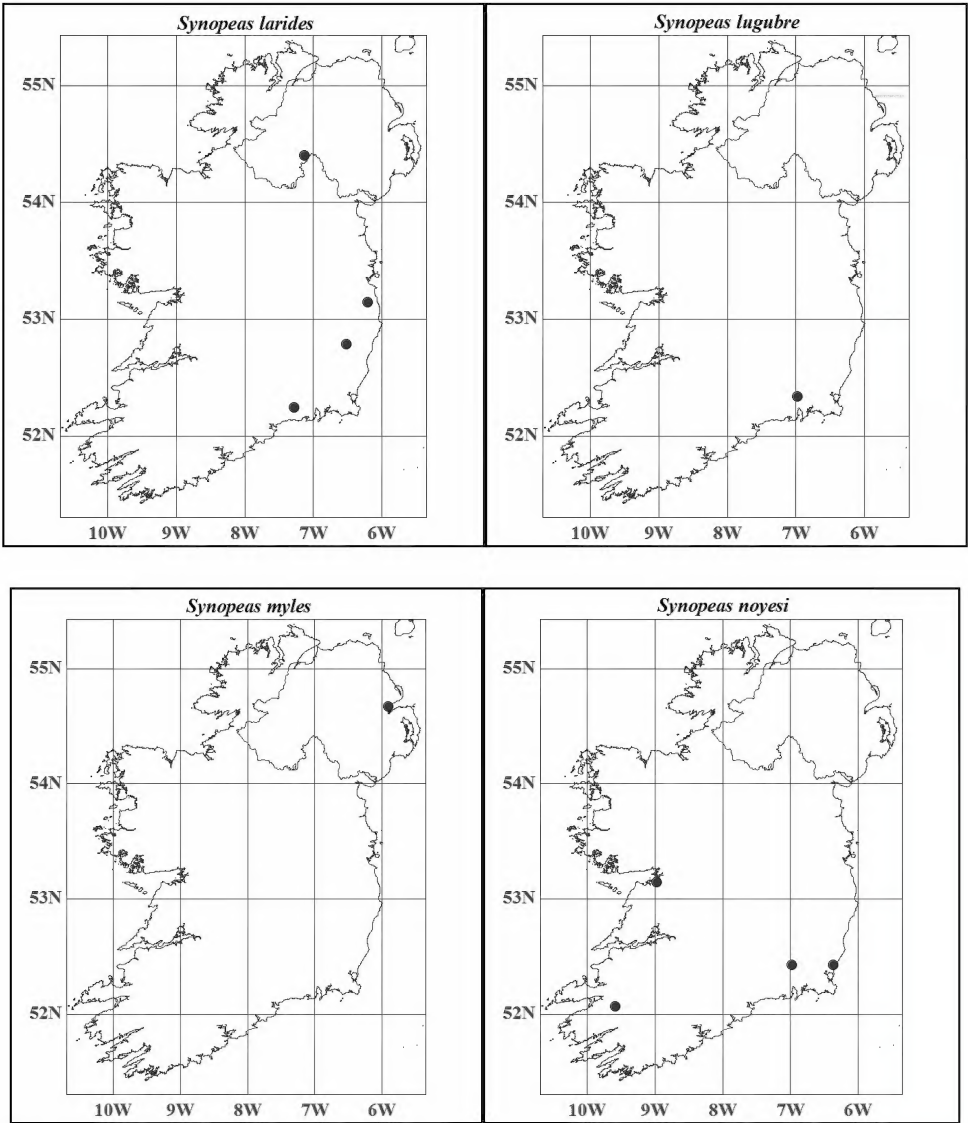
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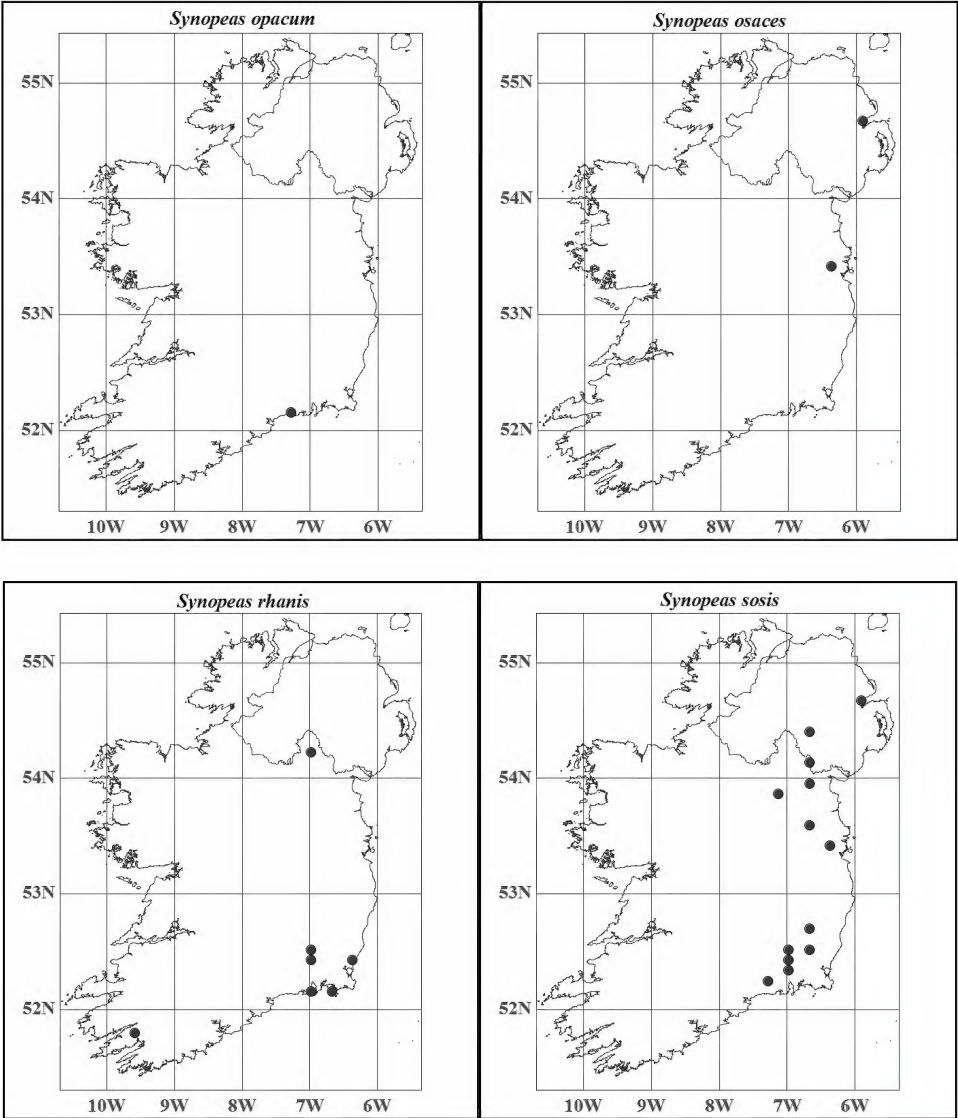
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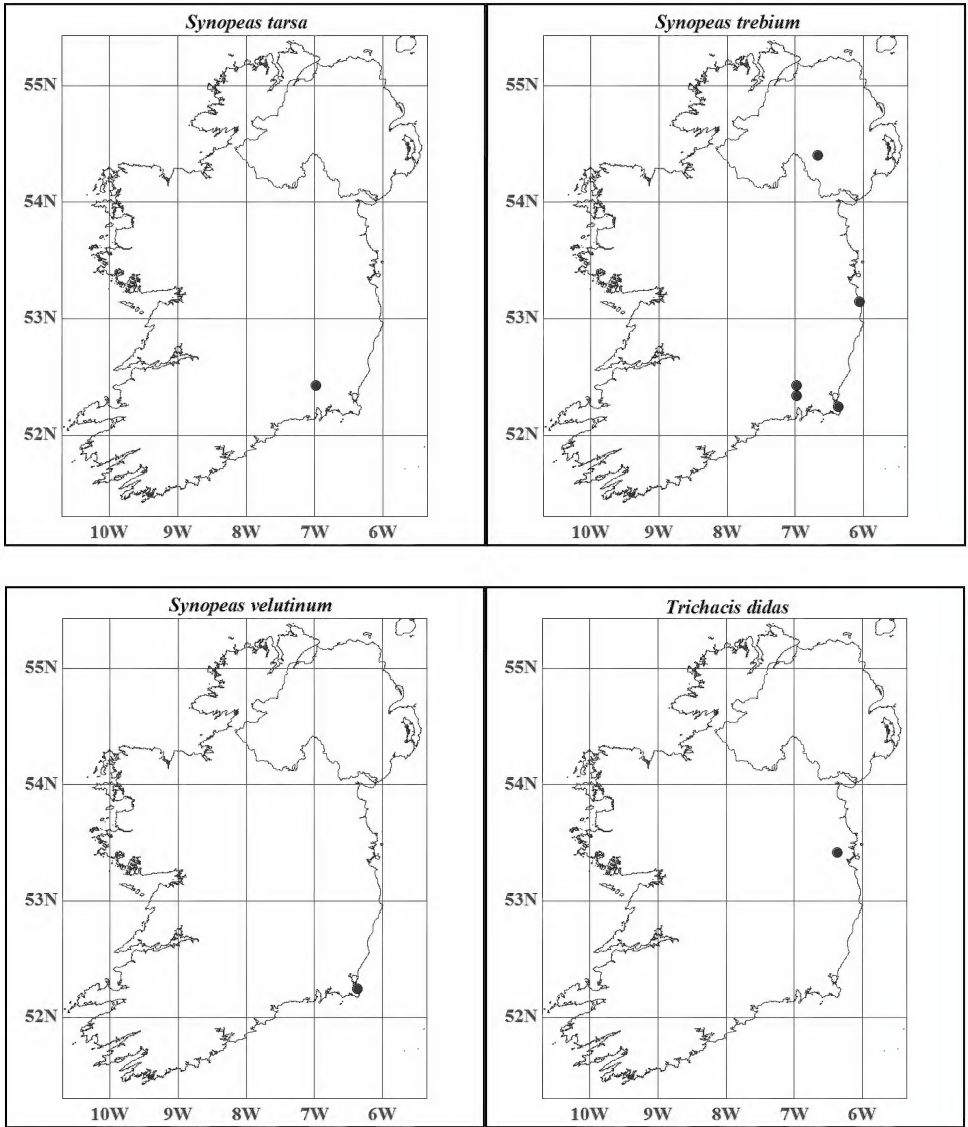
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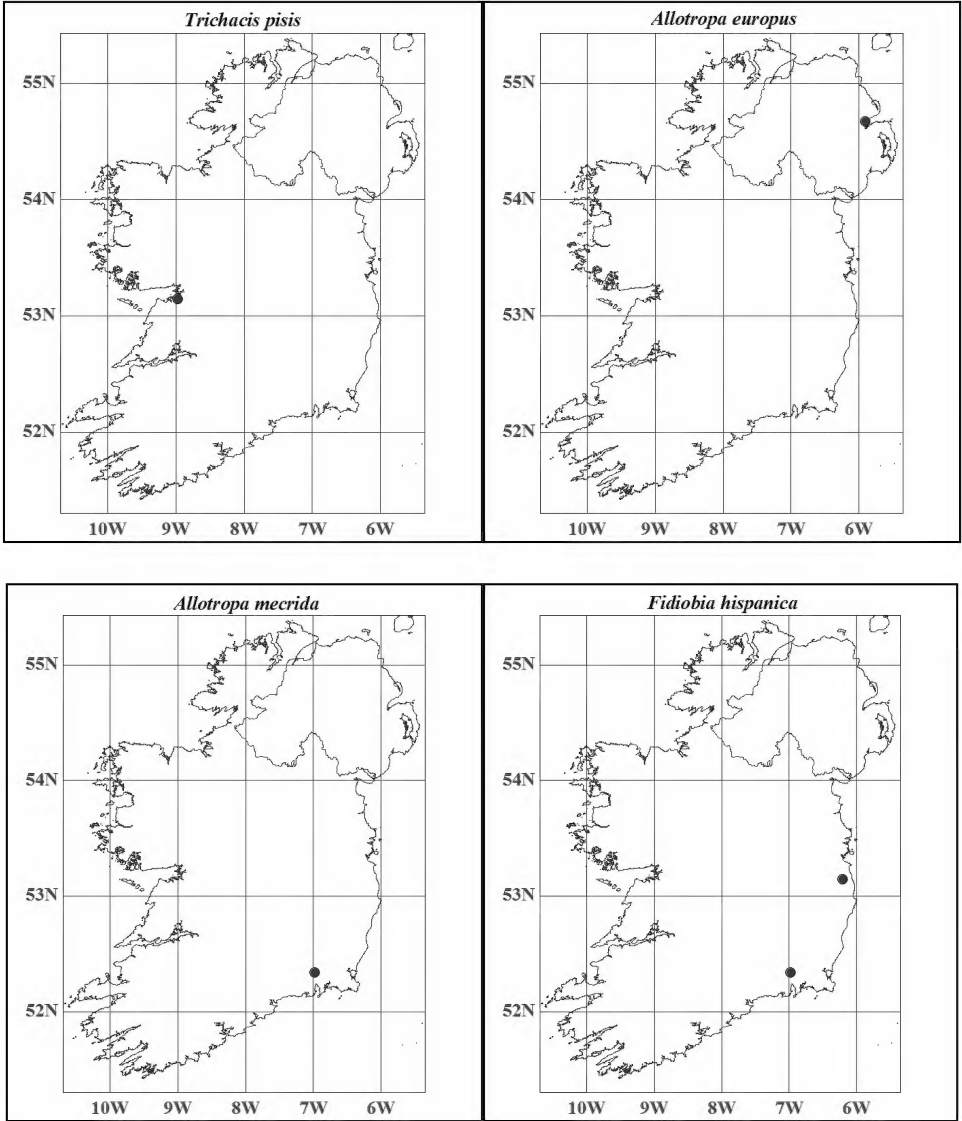
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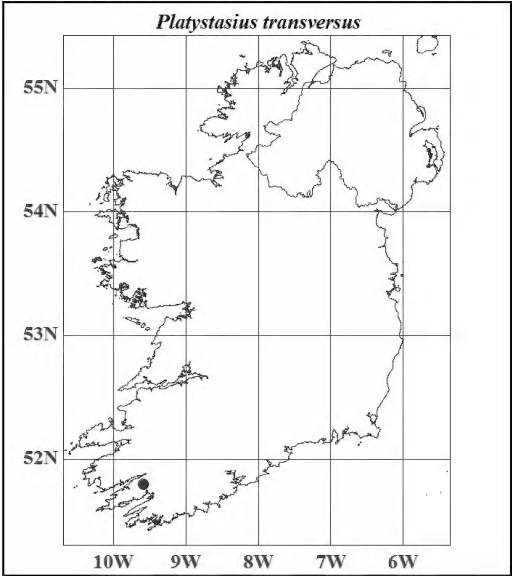
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FIGURES 137. The known Irish distribution of *Platystasius transversus*.



AN INDEXED BIBLIOGRAPHICAL CHECKLIST OF THE FALSE-SCORPIONS (ARACHNIDA: PSEUDOSCORPIONES) OF IRELAND (1836-2014)

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Dedication

This publication is dedicated to the memory of Harry Wallis Kew (1868-1948), the most significant worker on pseudoscorpions in these islands. His review (1911a) and supplement (1916a) remain important publications. Kew added numerous species to the Irish list, and two of his most important discoveries, *Kewochthonius halberti* (Kew, 1916) and *Neobisium carpenteri* (Kew, 1910) relate to Ireland.

Abstract

A bibliography relating to Ireland's pseudoscorpions is presented. This can be searched for species, counties and some other topics.

Key words: pseudoscorpions, Ireland, bibliography, counties, distribution.

Introduction

The following comprises an indexed bibliography relating to the occurrence of pseudoscorpions in Ireland, which can be searched for topics including species, counties, some habitats etc. In order to save space, references are numbered and these numbers used throughout the text. References which add a species to the Irish list are indicated using **bold** print. Two publications (43 and 52) while not strictly relevant are included for completeness sake.

Pseudoscorpions are small and inconspicuous invertebrates, which need to be deliberately searched for. Specimens will occasionally be found under stones etc, but sieving leaf litter and cowshed/stable debris is rather more productive. Many species have southern tendencies, and others tend to be synanthropic. This last group is likely to be greatly under-recorded. Seventeen species have been reported from Ireland of which only *Chthonius tetrachelatus* (Preyssler, 1790), *C. ischnocheles* (Hermann, 1804), *Neobisium maritimum* (Leach, 1812), *N. carcinoides* (Hermann, 1804) and *Dinocheirus panzeri* (C. L. Koch, 1837) are widespread. *Kewochthonius halberti* (Kew, 1916) and *Chelifer cancroides* (Linnaeus, 1761) have not been seen in Ireland for over a century.

A number of doubtful records have persisted in the literature, some for well over a century. Templeton (1836) reported *Lamprochernes nodosus* (Schränk, 1803) (as *Chelifer parasitica*

Hermann, 1804) from Co. Antrim, however Kew (1916a) suggested that *Pselaphochernes dubius* (O. P.-Cambridge, 1892) was more likely to be the species involved. Stephens' (1910) record for *C. cancroides* was treated by Kew (1916a) as referring to *Lamprochernes savignyi* (Simon, 1881). Carpenter's (1902) record of *Chthonius orthodactylus* (Leach, 1817) was based on a specimen subsequently seen by Kew (1909) who considered it to be *C. tetrachelatus*. *Allochernes powelli* (Kew, 1916) is alluded to as being Irish by Evans and Browning (1954), probably in error. These doubtful references and some other errors, are indicated in the indices by appearing in brackets (). Anon. (1896) reported *Pselaphochernes scorpioides* (Hermann, 1804) (as *Chernes phaleratus* Simon, 1879) from Co. Wicklow, however when Kew (1909) examined this specimen he reported that it was more likely that *P. dubius* was involved. This record is indicated in the index using a question mark "?". *Chernes cimicoides* (Fabricius, 1793) has been erroneously alluded to as occurring in Ireland by Legg and Jones (1988) and Alexander (2002). The status of *C. orthodactylus* in Ireland has been queried (Legg and O'Connor, 1997) and requires clarification. Nomenclature follows Legg and Jones (1988).

Index to the bibliography 1: species

CHTHONIIDAE

***Kewochthonius halberti* (Kew, 1916)**

24, 26, 33, **42**, 45, 46, 48, 50.

***Chthonius tetrachelatus* (Preysler, 1790)**

7, 22, 24, 26, 33, **34**, 35, 37, 38, 39, 42, 45, 46, 50.

***Chthonius ischnocheles* (Hermann, 1804)**

1, 3, 6, 7, 8, 11, 19, 22, 24, 26, 29, 33, 34, 35, 37, 38, 39, 41, 42, 45, 46, 50.

***Chthonius orthodactylus* (Leach, 1817)**

11, (18), 24, 33, 45, 46, **47**.

NEOBISIIDAE

***Neobisium maritimum* (Leach, 1812)**

16, 22, 24, 26, 33, **34**, 35, 36, 38, 42, 45, 46, 50, 51, 53.

***Neobisium carpenteri* (Kew, 1910)**

13, 14, 22, 24, 26, 33, **35**, 36, 37, 40, 42, 45, 46, 50.

***Neobisium carcinoides* (Hermann, 1804)**

11, 15, 17, 18, 19, 20, 22, 24, 26, 29, 33, 34, 35, 36, 37, 38, 42, 45, 46, **49**, 50.

***Roncus lubricus* L. Koch, 1873**

22, 24, 25, **27**, 28, 33, 42, 45, 46, 50.

***Roncocreagris cambridgei* (L. Koch, 1873)**

24, **28**, 33, 39, 42, 45, 46, 50.

CHEIRIDIIDAE

Cheiridium museorum (Leach, 1817)

9, 22, 24, 26, 33, 34, 38, 39, 42, 45, 46, 50, **55**.

CHERNETIDAE

Lamprochernes savignyi (Simon, 1881)

4, 24, 26, 30, 33, **37**, 42, 45, 46, 50.

Lamprochernes nodosus (Schränk, 1803)

5, 22, 24, 26, 33, 42, 45, 46, 50, (55).

Pselaphochernes dubius (O. P.-Cambridge, 1892)

24, 33, 34?, **39**, 42, 45, 46, 47, 50.

Pselaphochernes scorpioides (Hermann, 1804)

(2), 22, 24, 33, **44**, 45, 46.

Allochernes powelli (Kew, 1916)

24, (26), **46**.

Dinocheirus panzeri (C. L. Koch, 1837)

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Clare

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Down

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Dublin

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Fermanagh

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Galway

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Kerry

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Kildare

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Kilkenny

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Leitrim

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Limerick

10, 22, 24, 33, 34, 42, 45, 46, 50.

Longford

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Louth

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Monaghan

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Offaly

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Roscommon

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Tipperary

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Waterford

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Westmeath

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Wexford

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Wicklow

2, 24, 33, 34, 36, 38, 42, 45, 46, 47, 50.

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13, 14, 15, 17, 22, 24, 35, 36, 38, 41, 44, 46.

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RECORDS OF SOME FRESHWATER AND HALOBIONTIC CHIRONOMIDAE (INSECTA: DIPTERA) FROM COUNTY CORK, IRELAND

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Abstract

Records of 26 species of Chironomidae are reported from County Cork, Ireland including four halobiontic species from marine coastal sites. The identified material is listed and comments on some species are given.

Key words: Chironomidae, Ireland, Cork, records, distribution.

Introduction

During a brief visit to Fota Island and the environs of Kinsale, County Cork, between 30 August and 1 September 2016, opportunities arose to collect pupal exuviae and some adult Chironomidae from several freshwater and saline/marine locations. Samples were obtained at eight sites, five in the Fota Island district and three in the Kinsale area. All eight sites lie within Hydrometric Area 20. Examination of the material yielded some 26 species including four halophilous/halobiontic species. The majority of species present in the collections are well represented elsewhere in Ireland. A total of eight species are new to County Cork, one of which has hitherto not been reported from Ireland.

Methods

Collections were made at eight sites, details of which are given in Table 1. Some adult Chironomidae were obtained by sweep-netting but the majority of records are derived from collections of chironomid pupal exuviae obtained by skimming the water surface of ponds or marine rock pools or the tidal shoreline with a fine mesh net. Specimens obtained were preserved in the field in 70% alcohol. Identification of adult male specimens was from Langton and Pinder (2007) and of pupal exuviae from Langton and Visser (2003).

Results and discussion

Twenty six species recorded in the collections are listed in Table 2. In the following discussion information on Irish distribution records of Tanypodinae is obtained from Murray *et al.* (2013), of Orthoclaadiinae from Murray *et al.* (2014) and of Chironominae from Murray *et al.*

(2015). Four species of Tanypodinae were identified, each at different sites. Three of these, *Ablabesmyia longistyla* Fittkau, 1962, *Macropelopia nebulosa* (Meigen, 1804) and *Procladius choreus* (Meigen, 1804), each with in excess of 200 records from 25, 23 and 29 counties respectively, are widespread in Ireland. However, *Zavrelimyia hirtimana* (Kieffer, 1918) found at Site K1, Rathmore, has been rarely found in Ireland, with only 11 previous records from Counties Galway, Kerry, Kilkenny, Meath and Tipperary. The record from Site K1 is the first from County Cork.

Seven species of Orthocladiinae are reported, three of which, *Clunio marinus* Haliday, 1855, *Halocladius varians* (Staeger, 1839) and *Thalassosmittia thalassophila* (Bequaert and Goetghebuer, 1914), are halobiontic. The latter has been found previously in County Cork but the records of *C. marinus* from Site K2 and of *T. thalassophila* from three sites constitute first records of these species for the county. *C. marinus*, described from the Dingle area of the adjoining County Kerry by Haliday (1855), has previously been reported in Ireland from 18 coastal locations in eight counties (Murray *et al.*, 2014). Pupal exuviae of *H. varians*, a species previously known from 11 locations in five counties (including a record from County Cork at Lough Ine) were collected at two sites on Fota Island, F4 and F5. The record from the foreshore at Bellvelly (F5) is not unexpected but its occurrence in the collections from the pond in the Fota Wildlife Park (F4) is noteworthy, signifying a saline influence (see following comments on species records of Chironominae from Site F4 below). Pupal exuviae of *T. thalassophila*, not previously known from County Cork but already on record from 31 coastal locations in six other counties, were collected at Sites F5 and K2 while several adult male imagines were collected swarming over the water surface of a sheltered rock pool at Site K3, Garrylucas Strand. The other species of Orthocladiinae in the collections are typical inhabitants of freshwater habitats. One of these, *Cricotopus sylvestris* (Fabricius, 1794) is resistant to many forms of pollution but occurs over a wide range of environmental conditions. Found at three sites, including the pond F4, *C. sylvestris* has a widespread Irish distribution with over 125 records from 28 counties, including seven previous records from County Cork. The remaining three species of Orthocladiinae found in the collections, *Cricotopus reversus* Hirvenoja, 1973, *Orthocladius fuscimanus* (Kieffer, 1908) and *Psectrocladius limbatellus* (Holmgren, 1869), have not been reported previously from County Cork. *C. reversus* is known from 14 locations in eight counties. Pupal exuviae of *O. fuscimanus*, a species whose larvae favour hygropetric habitats, were collected from the water surface of a pool below an artificial decorative waterfall at Site F1. It is already known from 36 locations in 15 counties. *P. limbatellus* is known from 45 locations in 15 counties.

Fifteen species of Chironominae are reported, ten of which were collected from the pond at Fota Island Golf Club (Site F3). With the exception of one species, *Tanytarsus mendax* Kieffer,

1925, already known from 19 locations in 13 counties which is presented here as a new record for County Cork, the remaining nine are previously on record for the county.

Two species of Chironominae, *Baeotendipes noctivagus* (Kieffer, 1911) and *Chironomus salinarius* Kieffer, 1915, collected from the pond at the Fota Island Wildlife Park along with the record of the Orthocladiinae species *Halocladus varians* (see above) are noteworthy and deserving of further comment. This pond, which lies approximately 3 m.a.s.l. is somewhat enriched from the significant resident aquatic wildfowl population and at its closest is less than 100 metres removed from a tidal inlet of Cork Harbour. Water levels of the pond are known to fluctuate with tidal events and it is evident that the pond is organically enriched and somewhat saline. The presence of three halophilous species of Chironomidae is thus not unusual. *C. salinarius*, as its specific epithet implies, is adapted to saline waters and is previously known in Ireland from five locations in four counties, including County Cork where it was first collected in Ireland in 1969 from Lough Reenydonegan, Bantry (Murray, 1972; Bracken and Murray, 1973). The finding of *B. noctivagus* at Fota is more significant as this is the first record of the species from Ireland (Murray, in press). Larvae of *B. noctivagus* are halophilous, grazing on detritus in soft sediments of saline ponds. In the current version of *Fauna Europaea*, Sæther and Spies (2013) cite *B. noctivagus* as having a predominantly circum Mediterranean distribution. The record from Fota Island extends the known distribution range of this species considerably northwards and it could be considered an additional element of the Lusitanian fauna of south-west Ireland.

Existing species lists are unquestionably related to collection/sampling effort and available taxonomic expertise for specific identification and are constantly subject to change. From the distribution data on Irish Chironomidae given by Murray *et al.* (2013, 2014, 2015), it is known that some 223 species were on record for County Cork. The collections reported here yielded eight new species records for the county bringing the total known species to 231.

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TABLE 1. Sites and dates of sampling in County Cork where Chironomidae were obtained.

Site code	Habitat, Location and grid reference	Date of sampling
Site F1	Water feature at Resort Hotel entrance, Fota Island (W799720)	30 August 2016
Site F2	Water feature in lawn at Resort Hotel, Fota Island (W799721)	30 August 2016
Site F3	Pond at Golf Course Club House, Fota Island (W799718)	30 August 2016.
Site F4	Saline Pond, Fota Wildlife Park, Fota Island (W782714)	30 August 2016.
Site F5	Marine foreshore, Belvelly, west of bridge from Fota Island to Great Island (W789708)	30 August 2016.
Site K1	Water feature at Macdonald Hotel, Rathmore, Kinsale (W677496)	31 August 2016
Site K2	Marine rocky shore at Rathmore, Kinsale (W678499)	31 August 2016.
Site K3	Marine rock pool, Garrylucas Strand, Old Head, Kinsale (W610429)	1 September 2016

TABLE 2. Species of Chironomidae recorded from sites at Fota Island, Rathmore and Old Head of Kinsale, County Cork. Site details are given in Table 1 and new records for County Cork are denoted by an asterisk *

Taxon	Site(s)
Subfamily Tanypodinae	
<i>Ablabesmyia</i> (<i>Ablabesmyia</i>) <i>longistyla</i> Fittkau, 1962	F3
<i>Macropelopia nebulosa</i> (Meigen, 1804)	K1
<i>Procladius</i> (<i>Holotanypus</i>) <i>choreus</i> (Meigen, 1804)	F2
* <i>Zavrelimyia</i> (<i>Zavrelimyia</i>) <i>hirtimana</i> (Kieffer, 1918)	K1
Subfamily Orthocladiinae	
* <i>Clunio marinus</i> Haliday, 1855	K2
* <i>Cricotopus</i> (<i>Isocladius</i>) <i>reversus</i> Hirvenoja, 1973	F3
<i>Cricotopus</i> (<i>Isocladius</i>) <i>sylvestris</i> (Fabricius, 1794)	F1, F3, F4
<i>Halocladius</i> (<i>Halocladius</i>) <i>varians</i> (Staeger, 1839)	F4, F5
* <i>Orthocladius</i> (<i>Eudactylocladius</i>) <i>fuscimanus</i> (Kieffer, 1908)	F1
* <i>Psectrocladius</i> (<i>Psectrocladius</i>) <i>limbatellus</i> (Holmgren, 1869)	K1
* <i>Thalassosmittia thalassophila</i> (Bequaert & Goetghebuer, 1914)	F5, K2, K3
Subfamily Chironominae	
* <i>Baeotendipes noctivagus</i> (Kieffer, 1911)	F4
<i>Chironomus</i> (<i>Chironomus</i>) <i>salinarius</i> Kieffer, 1915	F4
<i>Chironomus</i> (<i>Chironomus</i>) <i>tentans</i> Fabricius, 1805	F3
<i>Dicrotendipes nervosus</i> (Staeger, 1839)	F3
<i>Endochironomus tendens</i> (Fabricius, 1775)	F3
<i>Glyptotendipes</i> (<i>Glyptotendipes</i>) <i>barbipes</i> (Staeger, 1839)	F2
<i>Glyptotendipes</i> (<i>Glyptotendipes</i>) <i>pallens</i> (Meigen, 1804)	F3
<i>Kiefferulus</i> (<i>Kiefferulus</i>) <i>tendipediformis</i> (Goetghebuer, 1921)	F2
<i>Microtendipes chloris</i> (Meigen, 1818)	F3
<i>Polypedilum</i> (<i>Pentapedilum</i>) <i>sordens</i> (van der Wulp, 1874)	F3
<i>Micropsectra lindrothi</i> Goetghebuer, 1931	F2
<i>Paratanytarsus dissimilis</i> (Johannsen, 1905)	F3
<i>Paratanytarsus inopertus</i> (Walker, 1856)	F3
* <i>Tanytarsus mendax</i> Kieffer, 1925	F3
<i>Tanytarsus pallidicornis</i> (Walker, 1856)	F3

A CONTRIBUTION TO THE FAUNA EUROPEA DATABASE - ADDITIONS AND AMENDMENTS TO THE INVENTORY OF IRISH CHIRONOMIDAE (DIPTERA: INSECTA) FROM THE REPUBLIC OF IRELAND AND NORTHERN IRELAND

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Abstract

Additions and amendments are provided for the inventory of Chironomidae for the Republic of Ireland and Northern Ireland in Fauna Europaea (version 2.6). Forty one species are added and five species removed from the list for the Republic of Ireland. Thirty species are added to the Northern Ireland list while, in the absence of published data twenty species are not confirmed, although likely since they are known from bordering districts in the Republic of Ireland.

Key words: Chironomidae, Republic of Ireland, Northern Ireland, Fauna Europaea, inventory, amendments.

Introduction

Compilation of species checklists by country is a pragmatic political objective. However resulting lists may be inaccurate due to misplacement of species records from adjoining countries border regions. Political boundaries rarely define biogeographical zones on mainland Europe while, in contrast, isolated islands are recognisable as distinct biogeographical zones. The current inventory of Chironomidae in version 2.6 of Fauna Europaea (Sæther and Spies, 2013) provides a register of species in countries of the European mainland as well as Mediterranean Islands, the United Kingdom, Ireland, Iceland and the Macronesian archipelagos of the Azores, Madeira and the Canary Islands. In the Limnofauna Europaea inventory of west European aquatic organisms, Illies (1978) treated Ireland and Great Britain as separate bioregions, Zones 17 and 18 respectively. However, the Fauna Europaea database (Sæther and Spies, 2013) gives an inventory of the known Chironomidae of Great Britain (England, Scotland and Wales - Zone 18 in Limnofauna Europaea) but provides separate inventories for the two political divisions in Zone 17, the Republic of Ireland and Northern Ireland (as part of

the United Kingdom). Thus Sæther and Spies (2013) list 468 species of Chironomidae for the Republic of Ireland and 338 species for Northern Ireland.

The political region of Northern Ireland embraces six of nine local administrative regions (counties) of the ancient Irish Province of Ulster, i.e. Antrim, Armagh, Derry (Londonderry), Down, Fermanagh and Tyrone. The remaining three counties of Ulster - Cavan, Donegal and Monaghan, are under the jurisdiction of the Republic of Ireland and these counties along with Leitrim (in the Province of Connacht) and Louth (in the Province of Leinster) have a tortuous 480km long international boundary with the Northern Ireland counties of Derry, Tyrone, Fermanagh and Armagh (Fig. 1). A number of species cited for Northern Ireland in Fauna Europaea by Sæther and Spies (2013) seemingly relate to records from adjacent border counties of Ulster in the Republic of Ireland, possibly from a mistaken interpretation of Langton's (2002) correct use of "northern Ireland" (note lower case "n") to distinguish the geographic northern region of Ireland from being confused with "Northern Ireland" as the separate political region on the island of Ireland.

It has been customary to report faunal records for Ireland on an all-island basis (e.g. Ashe *et al.*, 1998; Bond *et al.*, 2006; Chandler *et al.*, 2008; O'Connor, 2015). The recent compilation of distribution data for the known Irish Chironomidae by Murray *et al.* (2013, 2014, 2015) acknowledges this all-Ireland dimension of the island's shared international biodiversity resource and provides distribution data for all species known to occur in Ireland by biogeographical regions (Hydrometric Area) and by local political administrative regions (County). The data presented by Hydrometric Area provides species distribution information irrespective of the international boundary between Northern Ireland and the Republic of Ireland while data compiled by county facilitates compilation of information by political region or district. Based on that documentation of published records the present paper provides additional records and amends some inaccurate entries in version 2.6 of the Fauna Europaea chironomid species registers for the Republic of Ireland and Northern Ireland.

Methods

Information has been derived from published distribution records of species in the subfamilies Tanypodinae and Diamesinae in Murray *et al.* (2013) and in the subfamilies Orthocladiinae and Chironominae in Murray *et al.* (2014) and Murray *et al.* (2015) respectively.

AMENDMENTS FOR THE REPUBLIC OF IRELAND

Additional species for the Fauna Europaea (version 2.6) inventory

Forty two species are additions to the listing for the Republic of Ireland by Sæther and Spies

(2013) in the subfamilies Tanypodinae (1 species), Diamesinae (1 species), Orthocladiinae (12 species) and Chironominae (28 species in total - Tribe Chironomini 18, Tribe Tanytarsini 10).

Subfamily TANYPODINAE

Tanypus vilipennis (Kieffer, 1918)

Subfamily DIAMESINAE

Monodiamesa ekmani (Brundin, 1949)

Subfamily ORTHOCLADIINAE

Bryophaenocladus muscicola (Kieffer, 1906)

Cricotopus (*Cricotopus*) *algarum* (Kieffer, 1911)

Cricotopus (*Cricotopus*) *flavocinctus* (Kieffer, 1924)

Cricotopus (*Cricotopus*) *tibialis* (Meigen, 1804)

Cricotopus (*Isocladus*) *speciosus* (Goetghebuer, 1921)

Eukiefferiella cyanea Thienemann, 1936

Limnophyes spinigus Sæther, 1990

Metriocnemus (*Metriocnemus*) *terrester* Pagast, Thienemann and Krüger, 1941

Metriocnemus (*Metriocnemus*) *ursinus* (Holmgren, 1869)

Parakiefferiella scandica Brundin, 1947

Paratrichocladus skirwithensis (Edwards, 1929)

Rheocricotopus (*Rheocricotopus*) *effusus* (Walker, 1856)

Subfamily CHIRONOMINAE

Tribe Chironomini

Baeotendipes noctivagus (Kieffer, 1911)

Added by Murray (in press).

Benthalia carbonaria (Meigen, 1804)

Chironomus (*Chironomus*) *bernensis* Klötzli, 1973

Chironomus (*Chironomus*) *lacunarius* Wülker, 1973

Chironomus (*Chironomus*) *nudatarsis* Keyl, 1961

Chironomus (*Chironomus*) *prasinus* (Meigen, 1804) sensu Pinder, 1978

Chironomus (*Chironomus*) *striatus* Strenzke, 1959

Cryptochironomus (*Cryptochironomus*) *defectus* (Kieffer, 1913)

Glyptotendipes (*Glyptotendipes*) *glaucus* (Meigen, 1818)

Glyptotendipes (*Heynotendipes*) *signatus* (Kieffer, 1909)

Harnischia fuscimanus Kieffer, 1921

Microchironomus tener (Kieffer, 1918)

Microtendipes britteni (Edwards, 1929)
Microtendipes diffinis (Edwards, 1929)
Parachironomus cinctellus (Goetghebuer, 1921)
Parachironomus danicus Lehmann, 1970
Polypedilum (Tripodura) aegyptium Kieffer, 1925
Stictochironomus maculipennis (Meigen, 1818)

Tribe Tanytarsini

Cladotanytarsus (Cladotanytarsus) pallidus Kieffer, 1922
Paratanytarsus laetipes (Zetterstedt, 1850)
Paratanytarsus lauterborni (Kieffer, 1909)
Paratanytarsus tenellulus (Goetghebuer, 1921)
Rheotanytarsus reissi Lehmann, 1970
Stempellinella edwardsi Spies and Sæther, 2004
Stempellinella reissi Casas and Vilchez-Quero, 1991
Tanytarsus dibranchius (Kieffer, 1926)
Tanytarsus lugens (Kieffer, 1916)
Tanytarsus nemorosus Edwards, 1929

Species of doubtful status for ROI in Fauna Europaea (version 2.6)

Records of five species for the Republic of Ireland are unsubstantiated and should be removed from the listing for Ireland (Republic of Ireland).

Subfamily DIAMESINAE

Pseudodiamesa (Pseudodiamesa) nivosa (Goetghebuer, 1928)

The previously published record of *Pseudodiamesa nivosa* from a larval identification only by Fitzgerald (1947) and cited in Murray (1972) cannot be verified and is now omitted.

Subfamily ORTHOCLADIINAE

Cricotopus (Cricotopus) vierriensis Goetghebuer, 1935

Cited in error in Langton and Visser (2003) and Ashe and O'Connor (2012).

Smittia amoena Caspers, 1988

There is no record of *Smittia amoena* in the Republic of Ireland. This species is, however, known from Northern Ireland (Langton, 2012; Murray *et al.*, 2014, p. 213).

Subfamily CHIRONOMINAE

Parachironomus swammerdami (Kruseman, 1933)

A record of this species was cited in Murray and Ashe (1983), Ashe *et al.* (1998), Chandler (1998) and Chandler *et al.* (2008). However this record can not be verified and in the absence of voucher material, it is removed from the listing for Ireland.

Micropsectra recurvata Goetghebuer, 1928

This record was first cited in the Ph.D. thesis of Dowling (1975) but later omitted in the published listing by Dowling and Murray (1981). It was included in error in Murray and Ashe (1983), Ashe *et al.* (1998) and Chandler *et al.* (2008). In the absence of voucher material, it is removed from the listing for Ireland.

AMENDMENTS FOR NORTHERN IRELAND

Additional species for Northern Ireland

Thirty species are additions to the listing for Northern Ireland in Sæther and Spies (2013) from the subfamilies Tanypodinae (1), Telmatogetoninae (1), Orthocladiinae (21) and Chironominae (7, comprising 3 Chironomini and 4 Tanytarsini).

Subfamily TANYPODINAE

Procladius (Holotanypus) simplicistilus Freeman, 1948

Langton (2002) recorded the characteristic pupal exuviae of *Procladius* Pe1 that was subsequently confirmed as being *P. simplicistilus* by Murray and Baars (2007). Distribution details are given in Murray *et al.* (2013).

Subfamily TELMATOGETONINAE

Telmatogeton murrayi Sæther, 2009

This species was recorded by Langton (2015a).

Subfamily ORTHOCLADIINAE

Unless otherwise stated, distribution details of the following species in Northern Ireland are given in Murray *et al.* (2014).

Bryophaenocladius femineus (Edwards, 1929)

Bryophaenocladius muscicola (Kieffer, 1906)

Cricotopus (Cricotopus) fuscus (Kieffer, 1909)

Cricotopus (Isocladius) tricinctus (Meigen, 1818)

Gymnometriocnemus (Gymnometriocnemus) subnudus (Edwards, 1929)

The record of this taxon by P. H. Langton in Murray *et al.* (2014) was cited as *Gymnometriocnemus (Raphidocladius) brumalis* but subsequently Langton (2015b) revised his identification to *G. (G.) subnudus*.

Limnophyes edwardsi Sæther, 1990

Limnophyes pumilo (Holmgren, 1869)

Metriocnemus (Inermipupa) carmencitabertarum Langton and Cobo, 1997

Recorded by Langton (2015c).

Metriocnemus (Metriocnemus) alisonae Langton, 2013

Metriocnemus (Metriocnemus) cavicola Kieffer, 1921

Metriocnemus (Metriocnemus) ephemerus Langton 2015

First described and recorded by Langton (2015d).

Orthocladius (Orthocladius) glabripennis (Goetghebuer, 1921)

Orthocladius (Orthocladius) rhyacobius Kieffer, 1911

Paratrachocladius skirwithensis (Edwards, 1929)

Paratrissocladius excerptus (Walker, 1856)

Psectrocladius (Psectrocladius) bisetus Goetghebuer, 1942

Pseudorthocladius (Pseudorthocladius) macrovirgatus Sæther and Sublette, 1983

Pseudosmittia albipennis (Goetghebuer, 1921)

Smittia aterrima (Meigen, 1818)

Smittia contingens (Walker, 1856)

Smittia leucopogon (Meigen, 1804)

Subfamily CHIRONOMINAE

Distribution details of the following species in Northern Ireland are given in Murray *et al.* (2015).

Tribe Chironomini

Chironomus (Chironomus) pilicornis (Fabricius, 1787)

Demeijerea rufipes (Linnaeus, 1761)

Glyptotendipes (Caulochironomus) foliicola Kieffer, 1918

Due to the uncertainty of its specific status, this taxon/morphotype is cited as “doubtfully present” in Fauna Europaea (Sæther and Spies, 2013). Identification of specimens for records given in Murray *et al.* (2015) follows Pinder (1978) or Langton and Pinder (2007) for adult males and Langton and Visser (2003) for pupal exuviae.

Tribe Tanytarsini

Micropsectra pallidula (Meigen, 1830)

Tanytarsus buchonius Reiss and Fittkau, 1971

Tanytarsus lugens (Kieffer, 1916)

Tanytarsus palettaris Verneaux, 1969

Unconfirmed records for Northern Ireland

Records of twenty species, cited in Sæther and Spies (2013) in the subfamilies Tanypodinae (3 species), Orthocladiinae (6 species) and Chironominae (11 species - Chironomini 5, Tanytarsini 6), are seemingly based on inaccurate data and are unconfirmed for Northern Ireland. Nineteen of these, however, were recorded by Langton (2002) from the geographic northern Ireland (as distinct from the political Northern Ireland) mostly in County Donegal with other records from Counties Cavan or Monaghan. All twenty are known from the Republic of Ireland (Murray *et al.*, 2013, 2014, 2015). In the following species list the county or counties in Ulster, but not in Northern Ireland, that have known records of each species is (are) indicated by square brackets [] around the county name(s).

Subfamily TANYPODINAE

Apsectrotanypus trifascipennis (Zetterstedt, 1838) [Record from Monaghan]

Larsia atrocincta (Goetghebuer, 1942) [Record from Donegal]

Macropelopia notata (Meigen, 1818) [Record from Donegal]

Subfamily ORTHOCLADIINAE

Corynoneura celeripes Winnertz, 1852 [Record from Cavan]

Corynoneurella paludosa Brundin, 1949 [Record from Donegal]

Cricotopus (Cricotopus) pallidipes Edwards, 1929 [Record from Donegal]

Cricotopus (Isocladius) laricomalis Edwards, 1932

There are no published records from Northern Ireland or Ulster.

Cricotopus (Isocladius) obnixus (Walker, 1856) [Record from Donegal]

Psectrocladius (Psectrocladius) oligosetus Wülker, 1956 [Record from Donegal]

Subfamily CHIRONOMINAE

Tribe Chironomini

Chironomus (Chironomus) salinarius Kieffer, 1915 [Record from Donegal]

Dicrotendipes tritonus (Kieffer, 1916) [Record from Donegal]

Parachironomus mauricii (Kruseman, 1933) [Record from Donegal].

There is no confirmed record of *Parachironomus mauricii* from Northern Ireland. Langton (2002) cited a pupal exuviae record from Lough Mulladerg, County Donegal and while the record of this pupal morphotype is secure, its identification as *P. mauricii* is considered unreliable since Spies and Bolton (2013) regard records of *P. mauricii* based on pupal exuviae alone as unreliable (Murray *et al.*, 2015).

Parachironomus monochromus (van der Wulp, 1875) [Record from Donegal].

Paracladopelma nigriritulum (Goetghebuer, 1942) [Records from Donegal and Monaghan]

Tribe Tanytarsini

Cladotanytarsus (*Cladotanytarsus*) *difficilis* Brundin, 1947 [Record from Cavan]

Stempellinella brevis (Edwards, 1929) [Record from Donegal]

Tanytarsus inaequalis Goetghebuer, 1921 [Record from Donegal]

Tanytarsus recurvatus Brundin, 1947 [Record from Donegal]

Virgatanytarsus triangularis (Goetghebuer, 1928) [Records from Cavan and Donegal]

Zavrelia pentatoma Kieffer and Bause, 1913 [Record from Donegal]

Comment

Considering the above additions, amendments and deletions, the net addition to the chironomid species inventory for the Republic of Ireland is 37 species - 42 additions less 5 deletions - increasing the Fauna Europaea inventory from 468 to 505 species. The net increase for Northern Ireland is 10 species - 30 additions less 20 records erroneously included in Fauna Europaea version 2.6 (Sæther and Spies, 2013) giving a revised Northern Ireland total of 348 species. Currently the faunal inventory of Chironomidae for the island of Ireland stands at 518 species with an additional 19 species-level taxa known to occur from 17 unique pupal morphotypes and two undescribed species.

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***Footnote**

The publications “Distribution records of Irish Chironomidae (Diptera)” in three parts by Murray *et al.* (2013, 2014, 2015) are available on-line in pdf format from the website of the Irish Biogeographical Society at <[www. Irishbiogeographicalsociety.com](http://www.Irishbiogeographicalsociety.com)>

FIGURE 1. The counties of Ireland showing the international boundary between Northern Ireland and the Republic of Ireland. The Province of Ulster comprises the six counties of Northern Ireland and three counties, Donegal, Cavan and Monaghan, are in the Republic of Ireland.



RECORDS OF SOME RARE AND UNCOMMON IRISH SPIDERS (ARACHNIDA: ARANEAE)

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Abstract

Records of a range of rare, uncommon or locally occurring spider species noted from five or fewer counties in Ireland are presented on basis of specimens collected since 2001.

Keywords: Arachnida, Araneae, spiders, Ireland, rare species, county records, dune systems, calcareous grasslands, raised bogs, recent arrivals, thermophile.

Introduction

Records of 33 spider species noted from five or fewer counties in Ireland are presented including 32 new county records. They include the first specimen seen in Ireland for *circa* 100 years of *Trichoncus saxicola* (O. P.-Cambridge, 1861), records of species that were first seen in Ireland within the last twenty years or so e.g. *Hypsosinga albobittata* (Westring, 1851) and records of species collected in some abundance during large-scale surveys e.g. *Meioneta beata* (O. P.-Cambridge, 1906). Many of the records are of single or few specimens of less commonly encountered species. However, surveys carried out over a period of time e.g. at All Saints' Bog SAC or on a relatively large scale e.g. at Sheskinmore Dunes SAC have resulted in the collection of numerous specimens of lesser known species. These have supplied substantial information on the distribution and habitat preferences of some species. All specimens noted were collected and identified by the author unless otherwise stated.

Records

Species are listed alphabetically by family, then genus, then species. Records are given by county and then location within each county, again following alphabetical order. New county records are indicated after the county name with (NCR). County records were checked against Helsdingen (1996) and Cawley (2009) and subsequently published literature. A comment is added about each species' status in Britain and continental Europe based essentially on information from websites about spiders in Britain (Spider Recording Scheme, 2016) and Europe (Nentwig *et al.*, 2016). Nomenclature follows the most recent version of the British checklist (Merrett *et al.*, 2014). A number of proposed taxonomic changes that have been adopted elsewhere but do not appear in the British list are noted beneath the species name.

ARANEIDAE

Hypsosinga albovittata (Westring, 1851)

MEATH (NCR): Girley Bog NHA (N704701), 1 October 2015, 4 immatures.

OFFALY: All Saints' Bog SAC (N013110), 30 April 2008, ♀ from *Calluna/Eriophorum* dominated high bog; 12 June 2008, immature ♂; 30 July 2008, pre-submature ♂♀; 25 September 2008, submature ♂♀; (N013117), 1 June 2009, immature ♀ from regenerating cutaway dominated by *Eriophorum*. Ferbane Bog SAC (N107262), 6 May 2010, immature ♀ and 3 June 2010, 1 immature from wet central high bog; Mongan Bog SAC (N034308), 30 April 2010, ♀ and 1 immature from wet central high bog; Moyclare Bog SAC (N077241), 3 June 2010, submature ♀ and 1 immature from wet central high bog; Raheenmore Bog SAC (N437321), 29 April 2010, 1 immature from wet central high bog; (N433323) ♀ and 1 immature from drained marginal high bog; (N437321) 27 May 2010, submature ♀ from wet central high bog; Sharavogue Bog SAC (S049982), 7 May 2010, 1 immature from wet central high bog.

All specimens were collected with a sweep-net. *Hypsosinga albovittata* was first recorded from Lodge Bog, County Kildare and Clara Bog, County Offaly (Nolan, 2007). The species is now known from nine raised bogs and three counties in the Irish midlands and seems to be restricted to this habitat in Ireland. *H. albovittata* exhibits similar habitat preferences in Britain where it is mostly found on *Calluna* heathland but also occurs on calcareous grasslands. As a result, it may be found in Ireland on landforms such as eskers or other glacial deposits on which calcareous grassland has developed and perhaps especially on those adjacent to raised bogs with a known population of the spider. A thermophilous species, it prefers insolated open areas with low growing and perhaps sturdy vegetation amongst which it sets a small orb-web. *H. albovittata* is widespread in Europe though rather local throughout its range.

DICTYNIDAE

Argenna subnigra (O. P.-Cambridge, 1861)

DUBLIN: North Bull Island NNR (O252383), 4 June-3 July 2009, pitfall traps (x10), 7♂♂ from forb and grass rich fixed dune; (O249380), 4 June-3 July 2009, pitfall traps (x10), 8♂♂ from fixed dune with slack elements.

MAYO (NCR): Clare Island (L700844), 24 July 2002, ♀ collected by hand from a web set into a fissure on coastal rocks encrusted with *Verrucaria* lichen (splash zone).

A single male of this spider was collected from the upper section (sandy, small tidal influence) of saltmarsh on the Bull Island between 1961 and 1963 (Healy, 1975) and specimens of both sexes were collected on sand hills in County Kerry in 1969 (Mackie and Millidge, 1970). Cawley also collected it on a dune system in County Meath (Cawley, 2008). *Argenna*

subnigra has been recorded from a wide range of habitats in Britain, primarily grasslands, but also in abundance from post-industrial locations. It is most abundant in the south-east of England, tending towards coasts and otherwise not frequently encountered. The species prefers open and generally dry, insolated or well-draining conditions and is widespread through Europe though absent from some Mediterranean areas.

GNAPHOSIDAE

Zelotes electus (C. L. Koch, 1839)

DUBLIN (NCR): North Bull Island NNR (O252383), 4 June-3 July 2009, pitfall traps (x10), 2♂♂♀ from forb and grass rich fixed dune; (O247379), 4 June-3 July 2009, pitfall traps (x10), ♀ from fixed dune with dense *Ammophila*.

This species has been previously recorded from County Kerry (Mackie and Millidge, 1970) and two locations in County Wexford, in both cases from dune systems (Nolan, 2000b; Cawley, 2004). There are certainly records from some Northern Irish counties but McFerran places a questionmark against at least one of them (McFerran, 1997). *Zelotes electus* is thermophilous throughout its range and is an uncommon species in Britain where, as with Ireland, it is primarily coastal. In Britain, it does occasionally occur inland on sandy heathlands. *Z. electus* is found fairly widely throughout Europe and is xerothermic in habitat preferences, occurring for example on steppe and in dry meadows.

HAHNIIDAE

Hahnia pusilla C. L. Koch, 1841

OFFALY: Sharavogue Bog SAC (S049982), 7 May-4 June 2010, pitfall traps (x20), ♂ from wet central high bog.

The spider was first collected in Ireland from under a stone in the Burren, County Clare in 1969 (Mackie and Millidge, 1970) and was identified from the Blasket Islands, County Kerry, by J. R. Parker where it was collected *circa* 1973-74 (Parker, 1975). A number of specimens were trapped at Clara Bog, County Offaly, in 2007 (Nolan, 2013). The latitude in preference for open habitat in Ireland is reflected in Britain where it occurs most abundantly on calcareous grasslands and acid wetlands. *Hahnia pusilla* is also found on dunes and other grasslands and is considered a very uncommon species. It occurs widely in Europe though is not known from some Mediterranean countries.

LINYPHIIDAE

Bolyphantes alticeps (Sundevall, 1833)

DUBLIN: Cruagh forest (O137225), 16 September 2003, ♂ swept from *Luzula sylvatica*; 27

October 2003, 3 ♀♀ swept from *Luzula sylvatica*. Elevation *circa* 380m.

Recorded for the first time from this site (Nolan, 2000a) and still known only from there in Ireland. Given that the habitat in which it has been found in Dublin is certainly available elsewhere in Ireland, it seems likely the spider occurs elsewhere in the country. *Bolyphantes alticeps* sets a web amongst low vegetation or loose litter and is an upland/montane species. This preference is indicated in both Britain and continental Europe where in the former, its range is restricted to northern Britain and Scotland and in the latter, it occurs from low-montane to alpine altitudes appearing rarely in the lowlands.

***Centromerus levitarsis* (Simon, 1884)**

MEATH (NCR): Girley Bog NHA (N704701), 3-25 July 2016, pitfall traps (x10), ♀ from high bog in the wettest area remaining after extensive drainage. The area is probably wet in part due to recent drain-blocking raising the water level locally.

This spider has been previously recorded only twice in Ireland, originally from Pollardstown Fen in County Kildare (Helsdingen, 1997) and subsequently from Clara Bog, County Offaly (Nolan, 2013). Clearly it is associated with raised bog and fen and its presence on Girley Bog is a positive indicator for the bog having retained some elements of its wetland fauna despite heavy drainage. This is a very rare spider in Britain where it occurs also in bog and mire habitats/wet (*Betula*) woodland and is found amongst *Sphagnum* mosses. In Europe, *Centromerus levitarsis* is also rarely found and while fairly widespread has not been recorded from many countries. Most British and European records are from September through to April. Specific collection dates for the specimens from Pollardstown Fen are not given (Helsdingen, 1997) and the specimen from Clara Bog was collected late May to late June (Nolan, 2013). It might be the case that the species is under-recorded because the appropriate habitat is not sampled at the optimum time of year.

***Ceratinopsis stativa* (Simon, 1881)**

synonym *Styloctetor compar* (Westring, 1861)

KILDARE (NCR): the Curragh (N767121), 26 May-23 June 2015, pitfall traps (x10), ♂♀ from a damp hollow on open acid grassland.

MAYO (NCR): Iniscoog/Lough Mask (M143613), 21-24 May 2006, emptied 11-14 June 2006, pitfall traps (x10), 2 ♂♂ from lacustrine calcareous grassland on limestone. Traps were set by Eugenie Regan and Myles Nolan, and sorted by the former.

ROSCOMMON (NCR): Castlesampson esker SAC (M944403), pitfall traps (x10) set 21-24 May 2006, emptied 11-14 June 2006, ♂ from sandy calcareous grassland. Traps were set by Eugenie Regan and Myles Nolan, and sorted by the former.

There is an historical record from County Carlow (Pack-Beresford, 1909) and the species was subsequently collected in County Clare (Locket *et al.*, 1974). A grassland spider, its presence on acid as well as calcareous grasslands in Ireland is notable. The occurrence of *Ceratinopsis stativa* on the Curragh may be related to the stability of this environment over an extended time period (Good and Butler, 1996). The species is scattered through Wales and northern England but most abundant on calcareous grassland and unimproved grasslands in the south-east of England. *C. stativa* seems to be generally rare throughout Europe.

***Floronia bucculenta* (Clerck, 1757)**

OFFALY (NCR): All Saints' Bog SAC (N013117), 15 July 2009, 2♂♂; 13 August 2009, 4♂♂2♀♀ and 2♂♂2♀♀ immatures from vegetation surrounding a densely overgrown water-filled ditch crossing regenerating cutaway bog.

Previous records are from a wet ditch in County Carlow (Pack-Beresford, 1909), from *Ulex* in felled plantation forest in County Cork (Cawley, 2004), from open fen in County Down (Nelson, 2005) and from marsh in County Wexford (Gibson, 1982; Nolan, 2000b). This spider is strongly associated with wet, marshy habitats with taller vegetation and there is some range to the wetland habitats in which it occurs. It seems surprising that *Floronia bucculenta* has not been recorded more often in Ireland. In Britain, this spider is widespread through England but generally rather local and not frequently encountered. The species is widespread through Europe, absent from some Mediterranean areas and can be abundant locally.

***Gongylidiellum murcidum* Simon, 1884**

GALWAY: Cuiltdooish turlough (M414159), 25 June-3 July 2001, ♂ from pitfall traps (x9) set at the turlough margin. Traps were set and sorted by Eugenie Regan as part of a Ph.D. study of turlough margin invertebrates - the spiders were identified by the author.

There is a record from County Clare (Locket *et al.*, 1974) and more recently a number of records by Cawley from three sites in County Cork, where it was collected from wet moss under *Alnus/Juncus*, from wet grassland and from *Equisetum* marsh. He also collected the species from riparian *Salix* litter in County Roscommon (Cawley, 2004) and from a site in County Galway (Cawley, 2009). There are very few scattered records, the length of Britain, from a similar range of wet habitats including fen, bog, carr and wet-woodland. *Gongylidiellum murcidum* is loosely characteristic of mosses and litter in woodland in Europe and is relatively uncommon.

***Mecopisthes peusi* Wunderlich, 1972**

DUBLIN (NCR): North Bull Island NNR (O254384), 4 June-3 July 2009, pitfall traps (x10), ♀

from bare sand amongst mobile dunes; (O252383), 4 June-3 July 2009, pitfall traps (x10), 11♀♀ from forb and grass dominated fixed dunes.

Mecopisthes peusi was previously noted from Counties Down and Meath (Merrett, 1982) but no habitat or locality information was provided in this list of county records. Cawley subsequently collected it from dunes in County Meath (Cawley, 2008) and this provided the first information on the spider's habitat associations in Ireland. In Britain, the species is very uncommon and has a rather disjunct distribution, occurring in dune and coastal systems on the west coast in north Wales and north and south of the Mersey estuary. This rather restricted range of habitats suggests that it may be thermophilous in nature. In southern England, it is usually associated with dry heathlands. In Europe generally, *M. peusi* is found rarely and has a very limited distribution across central Europe into southern European Russia.

***Meioneta beata* (O. P.-Cambridge, 1906)**

synonym *Agynera affinis* (Kulczyński, 1898)

DONEGAL: Sheskinmore Dunes SAC, (131♂♂17♀♀ in total): (G699947), 26 May-26 June 2009, pitfall traps (x10), 29♂♂♀ from mobile dunes; (G700948), 26 May-26 June 2009, pitfall traps (x10), 5♂♂ from fixed dunes with very short mossy sward (grey dunes); (G699948), 26 May-26 June 2009, pitfall traps (x10), 61♂♂4♀♀ from fixed dunes with dense forb vegetation/*Ammophila*; (G686964), 27 May-27 June 2009, pitfall traps (x10), 4♂♂ from *Juniperus* heath/moist grassland; (G678959), 27 May-27 June 2009, pitfall traps (x5), 29♂♂ from strongly sloping fixed dune with patchily vegetated sand; (G676958), 27 May-27 June 2009, pitfall traps (x10), ♂ very short grazed sward with some prostrate *Calluna/Juniperus*; (G686951), 27 June 2009, suction-sample, ♀ from wet margin of slack lake; (G682951), 26 June 2009, suction-sample, 2♂♂6♀♀ from dense mossy and grassy vegetation at base of very tall foredune; (G698955), 27 June 2009, 5♀♀ from forb-rich machair.

MEATH (NCR): Girley Bog NHA (N704701), 25 June 2016, 2♀♀ collected by hand, sifting and grubbing through mosses in a re-wetting area of high bog.

OFFALY (NCR): All Saints' Bog SAC (N011109), 23 April-23 May 2008, pitfall traps (x10), 2♂♂ from high bog some hundred metres from woodland edge; (N013117), 1 June-15 July 2009, pitfall traps (x10), ♂ from *Eriophorum* dominated area of regenerating cutover; Mongan Bog SAC (N034308), 28 May-24 June 2010, pitfall traps (x20), ♂ wet central high Bog; Raheenmore Bog SAC (N433323), 27 May 2010, ♀ swept from *Calluna/Erica* vegetation in a drained marginal area of high bog; Sharavogue Bog SAC (S049982), 7 May-4 June 2010, pitfall traps (x20), 2♂♂ from wet central high bog.

Meioneta beata was first recorded in Ireland as singletons from a raised bog in County Kildare (Higgins, 1985) and from heather moorland in County Tyrone (Johnston and Cameron,

2002). Fifteen specimens were collected at a peatland site in County Donegal (Oxbrough, 2008). The abundance of the species at Sheskinmore might reflect the lack of negative impacts on this very extensive dune system and the records from acid bogs reflect more widely its association with this habitat in Ireland. Records would suggest that the spider is most abundant in the north-west and thinly dispersed across *Calluna* peatland elsewhere in Ireland. In Britain, the species has a widespread but patchy distribution through the country, is not particularly common, with numerous records from grasslands though there are many also from dune systems, heather moorland and acid wetland including bog all of which resembles the Irish situation. In Europe, the spider seems to be rather rarely found and occurs usually in mossy dry locations.

***Meioneta innotabilis* (O. P.-Cambridge, 1863)**

synonym *Agyneta innotabilis* (O. P.-Cambridge, 1863)

OFFALY (NCR): All Saints' Bog SAC (N007113), 12 June 2008, ♂ collected by hand from a *Pinus* trunk within a relatively dense area of *Pinus* dominated woodland with some *Betula*.

There are previous records from Bray in County Wicklow (Carpenter, 1898), from a cave on Lambay Island, County Dublin (Pack-Beresford, 1907) and from Bagenalstown, County Carlow (Pack-Beresford, 1909). The most recent was from trees at Inisherk, County Fermanagh (Cowden *et al.*, 1990). This spider is restricted to woodlands where it occurs on tree-trunks and seems to be most frequently seen by examining tree-trunks in sunshine in May/June. *Meioneta innotabilis* has a widespread but very scattered distribution in Britain and is more common in the south-east. The species is considered rather rare in Europe generally and has not been recorded from many countries.

***Meioneta mollis* (O. P.-Cambridge, 1871)**

synonym *Agyneta mollis* (O. P.-Cambridge, 1871)

DONEGAL (NCR): Sheskinmore Dunes SAC (31♂♂26♀♀ in total): (G700948), 26 May-26 June 2009, pitfall traps (x10), 3♂♂ from fixed dunes with very short sward (grey dunes); (G689953), 26 May-26 June 2009, pitfall traps (x10), 6♂♂2♀♀ from mossy dune slack with *Salix repens*; (G686964), 27 May-27 June 2009, pitfall traps (x10), 12♂♂♀, *Juniperus* heath on moist grassland; (G678959), 27 May-27 June 2009, pitfall traps (x10), 2♂♂ from fixed dune with patchy bare sand; (G676958), 27 May-27 June 2009, pitfall traps (x10), 3♂♂8♀♀ from very short grazed sward with some prostrate *Calluna/Juniperus*; (G689953), suction sample, 27 June 2009, ♀ from mossy dune slack with *Salix repens*; (G686951), 27 June 2009, suction sample, ♂4♀♀ from wet margin of a slack lake; (G686951), 27 June 2009, suction sample, ♂3♀♀6 from slack lake drift litter; (G676958), 26 June 2009, suction sample, ♀ from very short

grazed sward with some prostrate *Calluna/Juniperus*; (G687964), 26 June 2009, suction sample, ♂♀ from *Juniperus*; (G698955), 26 June 2009, suction sample, 2♀♀ from machair.

FERMANAGH (NCR): Monawilkin (H086527), pitfall traps (x10) set 21-24 May 2006, emptied 11-14 June 2006, ♂ from calcareous grassland. Traps set by Eugenie Regan and Myles Nolan, and sorted by the former.

Meioneta mollis was first recorded in Ireland in 2004 from lowland blanket bog in County Kerry where nineteen male specimens were collected from dryish ground close to damp flushes (Oxbrough, 2007). The occurrence of many of the present records in damper areas of the dune system e.g. slack lake, amongst humid grasses and forb might resemble British records where the species is associated with varied habitats including wet, acid and heather moorland habitats, grasslands and woodlands. *M. mollis* is only common in southern England so the abundance of specimens in north-west Ireland is intriguing. In Europe, generally the species occurs in damp grasslands and is strongly associated with wet woodland also.

***Meioneta mossica* (Schikora, 1993)**

synonym *Agyneta mossica* (Schikora, 1993)

DONEGAL: Sheskinmore Dunes SAC (G686964), 27 May-27 June 2009, pitfall traps (x10), ♂ from moist grassland with extensive *Juniperus* heath.

MAYO: Clare Island (L700878), 7 June-28 June 2006, pitfall traps (set and sorted by Stephen McCormack), ♂ from *Molinia* dominated blanket Bog.

The record from County Mayo is not considered a NCR because re-examination of the specimen of *Meioneta saxatilis* (Blackwall, 1844) (*Microneta saxatile* Camb.) collected by Pack-Beresford in June 1909 (Pack-Beresford, 1911b) and held in the collection of the National Museum of Ireland shows it to be referable to *M. mossica*. The taxon *M. mossica* was recently first recorded from Ireland where it was found in montane situations in Counties Donegal and Sligo (Nolan and McCormack, 2004). The species was subsequently reported in numbers from Carrowbehy Bog in County Roscommon (Nolan, 2013). Records suggest therefore a north-western bias similar to that in Britain where this spider is most common in Scotland, north-west England and western Wales. *M. mossica* tends to prefer wet and damp habitats while *M. saxatilis* is associated with open, humid to dry habitats, especially grasslands. In Europe, *M. mossica* has a strong bias toward northern Europe and Fenno-Scandia where it occurs in damp habitats and bogs. It is very similar to its closely related congener *M. saxatilis* and other older records of *M. saxatilis* could refer to *M. mossica*.

***Milleriana inerrans* (O. P.-Cambridge, 1885)**

synonym *Collinsia inerrans* (O. P.-Cambridge, 1885)

All specimens from Counties Clare and Galway were caught in pitfall traps (x9) set by Eugenie Regan at the margins of turloughs in order to survey their invertebrate faunas as part of a Ph.D. study. All the spiders were identified by the author.

CLARE (NCR): Tulla (M366016), 26 June–4 July 2001 ♂.

GALWAY (NCR): Ballinduff SAC (M460080), 25 June–3 July 2001 ♀; Caherglassaun SAC (M415063), 26 June–4 July 2001, ♂; Caranavoodaun SAC (M453155), 25 June–3 July 2001, ♂; Coole/Garryland SAC (M416040), 26 June–4 July 2001, 2♂♂♀; Hawkhill (Coole/Garryland SAC) (M411023), 25 June–3 July 2001, 3♂♂; Kiltiernan SAC (M436146), 26 June–4 July 2001, ♂; Labane North (M464109), 25 June–3 July 2001, 2♂♂; Lydacan (M437078), 25 June–3 July 2001, 2♂♂; Blackrock/Peterswell SAC (M499083), 26 June–4 July 2001, 2♂♂; Rahasane SAC (M475194), 25 June–3 July 2001, ♂; Roo East (M396019), 26 June–4 July 2001, ♂♀; Roo West (M386022), 26 June–4 July 2001, ♀.

OFFALY (NCR): All Saints' Bog SAC (N013117), 14 July 2009, ♀ collected by hand from a densely overgrown water-filled ditch crossing regenerating cutaway bog.

This species was first recorded in Ireland from County Cork in 2000 (Nolan, 2002b) where it was seen subsequently by Cawley (2008). Single specimens have also been collected from wet grassland in County Limerick (Oxbrough, 2007) and in a Malaise trap set on planted wet grassland in County Kerry (Oxbrough, 2008). The spider is clearly widespread in Ireland's south-western quarter and is possibly a relatively recent arrival. *Milleriana inerrans* is a strong and active balloonist and it seems unlikely that the species would have been missed since the 1890s had it been present in abundances similar to today. In Britain, it is most abundant in southern England and otherwise has a very scattered distribution through the country. *M. inerrans* can occur in a wide range of habitats but this may be related to a strong dispersal tendency. Based on the Irish records, it would seem to have a preference for pastoral grasslands subject to disturbance, a preference exhibited by other widely dispersing linyphiid species e.g. *Erigone dentipalpis* (Wider, 1834) and *E. atra* Blackwall, 1833. *M. inerrans* appears to be spreading throughout Europe but has not been recorded from many countries especially those of eastern Europe. The species seems rarely to be collected in large numbers.

***Minicia marginella* (Wider, 1834)**

OFFALY: Mongan Bog SAC (N034308), 30 April 2010, 3♂♂6♀♀, 3♂♂3♀♀ submatures from wet central high bog; 30 April–28 May 2010, pitfall traps (x20), 1 immature from wet central high bog; 28 May 2010, ♂5♀♀ from wet central high bog; Raheenmore Bog SAC (N437321), 29 April 2010, ♂3♀♀, 3♂♂ submatures from wet central high bog; (N433323), 27

May 2010, 3♀♀, ♀ immature from drained marginal high bog; Sharavogue Bog SAC (S049982), 7 May 2010, ♂ from wet central high bog; All Saints' Bog SAC (N013117), 1 June 2009, ♀ hand-collected from vegetation surrounding a densely overgrown water-filled ditch crossing regenerating cutaway bog.

Unless stated otherwise all specimens were collected with a sweep-net. First recorded from Clara Bog, County Offaly (Nolan, 2007), this spider is now known to occur on five raised bogs in the same county. Thus, the species may be considered an expected element of the midlands raised bog fauna albeit a rarity. *Minicia marginella* was discovered to have breeding populations in Britain only recently where it was also found to occur in mire/bog type habitat (Wilson, 2016). Despite its preference for mire habitats in Ireland and Britain it is a thermophilous species and while occurring in mire habitats elsewhere in north-western Europe, it also occurs on grasslands and on rock steppe in central Europe (Hänggi *et al.*, 1995) and it is a rare spider throughout its range.

***Moebelia penicillata* (Westring, 1851)**

OFFALY (NCR): All Saints' Bog SAC (N013111), all specimens but one were taken in tree-trunk eclectors set on four trees 2 x *Betula*, 2 x *Pinus* at a single location within the woodland; 19 March-23 April 2008, 2♂♂; 23 April-23 May 2008, 8♂♂♀; 23 May-12 June 2008, 3♂♂; 10 July-23 August 2008, ♀; 25 September-31 October 2008, ♀; N007113, 12 June 2008, ♂ collected by hand from *Pinus* trunk.

First collected in Ireland by Pack-Beresford in Counties Antrim and Carlow (Pack-Beresford, 1911a), Bristowe (1939) subsequently added it from County Down. The species seems not to have been recorded in Ireland since then. *Moebelia penicillata* occurs almost exclusively on tree-trunks and it is noteworthy that despite beating tree canopy and lower foliage a number of times and at different locations in the woodland on All Saints' Bog SAC, these methods produced no specimens. *M. penicillata* was also absent from a number of large-scale surveys of plantation forestry in recent years (Oxbrough, 2007, 2008). In Britain, it is widespread but rather local. Apparently, this spider occurs frequently on tree-trunks in Europe where it is widespread. As a result, it might be suggested that the species may have been heavily impacted in Ireland by the loss of woodland in the early modern period and its abundance at All Saints' Bog may support the argument that the woodland is ancient (Speight, 1990). Nevertheless this micro-site is probably under-examined for its spider fauna.

***Porrhomma egeria* Simon, 1884**

DUBLIN (NCR): Cruagh Forest (O137225), 18 March-1 April 2003, pitfall traps (x5), ♀ from amongst grasses and *Luzula sylvatica*, elevation *circa* 380m; Corduff (O072397), 26 March

2012, ♀ from under a stone on the banks of the Tolka River, collected and identified by Martin Cawley.

There are older records of this cavernicolous spider from mosses in County Carlow (Pack-Beresford, 1909), more recently from a cave in County Cork (Hazelton, 1974) and beech *Fagus* woodland in County Kildare (Cawley, 2008). The Cruagh record is also from beech woodland and may reflect the low light conditions locally. In Britain, most records are from caves and similarly dark anthropogenic habitats e.g. mines. *Porrhomma egeria* is widespread there but records are very scattered. The species is not recorded from numerous European countries but is widespread into Russia. Given its preferred habitat, this spider is generally almost certainly under-recorded.

***Porrhomma montanum* Jackson, 1913**

DUBLIN: Cruagh Forest (O132229), April 2003, ♀ found crawling on the author after leaving the site; (O137226), 27 October 2003, ♂ swept from *Luzula sylvatica*; (O138226), 14 February 2004, ♀ found under a stone on *Fagus* litter. Elevation *circa* 380m.

MAYO (NCR): Clare Island, Loughanaphuca (L655851), 25 July 2002, 2♀♀ collected by hand from under deeply embedded stones.

Porrhomma montanum was added to the Irish list some years ago (Nolan, 2002a). The species was found previously at the Dublin site and also in the County Wicklow uplands and a coniferous forest in the Burren, County Clare (Nolan, 2002b). *P. montanum* is relatively uncommon in Britain with a preference for upland/montane areas and has a north-western distribution. In Europe, it also has a distinctly northern distribution, being absent from Mediterranean countries and usually associated with woodland occurring in lowland and montane situations.

***Silometopus incurvatus* (O. P.-Cambridge, 1873)**

DONEGAL: Sheskinmore Dunes SAC (G699947), 26 May-26 June 2009, pitfall traps (x10), 3♀♀ on bare sand with very sparse vegetation amongst mobile dunes.

The species was recently first recorded in Ireland from another dune system in County Donegal by Cawley (2008). In Britain, it is also associated with dune systems, mostly on the east coast of Scotland and northern England. *Silometopus incurvatus* can be locally abundant. On continental Europe, the species also occurs only on coasts so obviously has a restricted distribution; *S. incurvatus* is found in Fenno-Scandian, Baltic and Mediterranean countries and further east.

***Sintula corniger* (Blackwall, 1856)**

OFFALY (NCR): Raheenmore Bog SAC (N437321), 29 April-27 May 2010, pitfall traps (x20), ♂ from wet central area of the high bog.

This species was added recently to the Irish list where it was recorded from heather moorland in Counties Derry and Tyrone (Johnston and Cameron, 2002). It was subsequently collected from mixed woodland in County Galway (Cawley, 2008). *Sintula corniger* is rather local and scattered throughout Britain and prefers damp/wet habitat types including acid habitats, heather moorland and swampy areas of woodland. It occurs throughout western and northern parts of Europe and into Russia.

***Trichoncus saxicola* (O. P.-Cambridge, 1861)**

DUBLIN: Howth Head (O297374), 2 June 2004, ♀ swept from tall forb/grass vegetation bordering a track.

The only previous Irish record of the species was also from Howth Head when a number of specimens were collected in October 1910 (Pack-Beresford, 1911a). *Trichoncus saxicola* is more or less restricted in Britain to an area of southern England where most records are coastal and where, as with the present Irish record, it has a preference for habitat with tall grasses. The species has a southern bias in Europe, being absent from most of the Baltic area. However, *T. saxicola* has not been found in a number of Mediterranean countries.

***Walckenaeria alticeps* (Denis, 1952)**

OFFALY: Ferbane Bog SAC (N107262), 6 May-3 June 2010, 9♀♀ from wet central high bog; (N115258), 2♂♂ from drained marginal high bog; (N107262), 3 June-1 July 2010, 7♀♀ from wet central high bog; Mongan Bog SAC (N034308), 30 April-28 May 2010, ♂ from wet central high bog; Moyclare Bog SAC (N077241), 6 May-3 June 2010, ♂ from wet central high bog; (N082245), 3 June-1 July 2010, ♀ from drained marginal high bog; Raheenmore Bog SAC (N437321), 29 April-27 May 2010, 3♂♂♀ from wet central high bog; (N433323), ♀ from drained marginal high bog; (N437321), 27 May-24 June 2010, 6♀♀ from wet central high bog; (N433323), ♀ from drained marginal high bog; Sharavogue Bog SAC (S049982), 7 May-4 June 2010, 3♂♂3♀♀ from wet central high bog; (S051989), ♂3♀♀ from drained marginal high bog.

All records were from pitfall traps (x20 at each central and marginal location). The spider was first recorded from Ireland fairly recently (Nolan, 2009) and is now known from seven raised bogs in County Offaly. *Walckenaeria alticeps* seems to be restricted to raised bogs in the midlands and is most abundantly recorded in their wet central areas, occurring less frequently in marginal situations. It should be considered a positive indicator for midlands raised bogs and is undoubtedly adversely affected by drainage practices. Its habitat preferences in Britain are

similar to those in Ireland with a clear association with *Sphagnum* bogs but also occurring in *Sphagnum* within shaded woodland. The species occurs there very locally and has a scattered distribution through the island, occurring predominantly in northern England. *W. alticeps* is widespread in Europe inhabiting damp and shaded habitats and generally would seem to be more abundant there than in Ireland and Britain.

LIOCRANIDAE

Agraecina striata (Kulczynski, 1882)

synonym *Liocranoeca striata* (Kulczynski, 1882)

CLARE: East Burren Complex SAC (M335030), 21-24 May 2006, pitfall traps (x10), emptied 11-14 June 2006, ♂ from calcareous grassland; 14 July 2006, 2♀♀ collected by hand from under stones. Traps were set by Eugenie Regan and Myles Nolan, and sorted by the former.

MAYO (NCR): Clare Island (L721859), 19 May 2002, ♂ and 21 May 2006, 2♀♀, collected by hand by Stephen McCormack and the author. Specimens were sieved from reed litter and from under tidal detritus on shingle at the edge of a brackish coastal lake separated from the sea by a shingle beach.

The species has been previously recorded from the Burren (Mackie and Millidge., 1970), from a grass/shingle coastal site in County Kerry (Mackie and Millidge, 1970) and from a coastal site in County Cork in 1971 (Mackie, 1972). *Agraecina striata* has a much wider habitat latitude in Britain and Europe than Irish records reflect and where it occurs in a range of wet habitats including heathland, bog, marsh, fen and wet broad-leaved woodland. *A. striata* is however rather uncommon in Britain with most records from the south-east coastal areas of southern England and few records further north. The species is widespread through Europe.

SALTICIDAE

Neon robustus Lohmander, 1945

DONEGAL (NCR): Errigal mountain (B927201), 1 May 2005, ♂3♀♀, ♀ submature, 2 small immatures seen. Specimens were collected on the southern slope of the mountain from under scree boulders at the margin of an expanse of *Calluna* heath on a very steep gradient. The male and one female specimen were immature when collected and moulted to maturity within one week of capture.

This spider is known from only one other location in Ireland, the scree slopes of the Sugarloaf Mountain in County Wicklow (Snazell *et al.*, 1999). A thermophilous, stenotopic species with a preference for insulated open scree slopes, it is restricted to western Europe where there are records from Fenno-Scandian countries, Germany, France and Spain. *Neon robustus* occurs in Scotland and northern England in Britain. The Donegal records greatly

expand the species' known distribution in Ireland and it seems likely that it occurs in other Irish counties with mountain scree slopes and is potentially widely distributed along Ireland's west coast.

***Talavera aequipes* (O. P.-Cambridge, 1871)**

MEATH (NCR): Girley Bog NHA (N705699), 18 August 2015, ♂2♀♀ submature, sifted from *Cladonia* in a significantly dry area of the high bog; (N704701), 1 October 2015, 1 immature, also sifted from *Cladonia* though this area is close to a blocked ditch and is substantially wetter than the other location in which the species was found.

This thermophilous spider was added to the Irish list only recently from Ferbane Bog SAC in County Offaly (Nolan, 2011). It was at the time stated that the species should occur on other raised bogs in Ireland and these records bear out that suggestion. In Britain, *Talavera aequipes* is rather a local and uncommon species occurring mostly in the south-east with very scattered records through much of England and fewer further north. Throughout its European range, *T. aequipes* is not uncommon and considered a thermophile species preferring open, insolated and often dry habitats.

***Talavera petrensis* (C. L. Koch, 1837)**

MAYO (NCR): Clare Island (L652843), 25 July 2002, ♀ collected by hand from under a stone on a grassy sward close to a small sandy cove at the western tip of the island.

This spider was first found in Ireland in 1909 in Counties Antrim and Galway (Pack-Beresford, 1911a). *Talavera petrensis* was seen again in County Galway in 2006/2007 where Cawley collected it from limestone pavement (Cawley and Nolan, 2007). The species in Britain is essentially restricted to an area of southern England where it is associated largely with heathland sites. However, it has occurred in a few montane situations in northern Britain. *T. petrensis* is found throughout Europe and European Russia generally in dryish habitats, heath, steppe and dry woodland and seems to be relatively common.

THERIDIIDAE

***Achaeareanea riparia* (Blackwall, 1834)**

synonym *Cryptachaea riparia* (Blackwall, 1834)

LIMERICK (NCR): Tory Hill SAC (R533433), 4 July 2006, 2♀♀, one was with her egg-sac within the retreat, the other active around its web. Remnants of four other retreats were also seen. Webs were set on barely vegetated rocky ground on a very steep slope. The active female was building or adding to her web, descending along a grass stem or directly to the ground, fixing a new line of silk to the substrate and then ascending the new strand into the web.

OFFALY (NCR): All Saints' Bog Esker SAC (N002107), summer 2009, ♀ found in her retreat set on a strongly inclined slope of large cobbles.

WESTMEATH (NCR): Spilt Hills/Long Hill Esker SAC (N346382), 6 July 2006, 4♀♀ collected, others seen in retreats and many other retreats (*circa* 20) seen elsewhere in the area. Webs and the characteristic retreats, coated with tiny stones and suspended within the web, were seen set amongst boulders, in low overhangs in the soil at the base of the slope near the road and in other similar clefts in the soil on the esker. Where the retreats were built over soil, then soil was used instead of very small stones to coat the retreat which thus appeared darker than ones suspended over rock/sandy soil. Presumably the local detritus is used to help the retreat blend into the surroundings. Ants form a significant part of the diet of *Achaeearanea riparia* and their desiccated corpses could be seen on the ground underneath a couple of retreats.

The only previous Irish record was from County Carlow in 1929 where Pack-Beresford found some specimens nesting on granite steps on his lawn (Pack-Beresford, 1938). This synanthropic situation would suggest the likelihood that the species may be more widespread in Ireland than the records indicate. All three sites presented here consist of glacial deposit with a vegetation characteristic of calcareous grassland. The strongly sloping, highly insolated and boulder rich substrate provides excellent conditions for this thermophilous species in Ireland. However it is highly cryptic and is very probably more abundant than the records currently indicate. The species generally prefers sandy insolated situations. In Britain, it has a very scattered distribution through southern England occurring most abundantly in heathland, woodland rides and at the margins of arable fields. *A. riparia* is apparently quite frequent in Europe but is acknowledged to be difficult to find despite occurring in varied habitats.

***Enoplognatha latimana* Hippa and Oksala, 1982**

DUBLIN (NCR): Sean Moore Park (O190321), 26 July 2011, 8♂♂♀ beaten from rank vegetation, collected and identified by Martin Cawley; Quarryvale (O073352), 7 August 2012, ♂ beaten from rank vegetation, collected and identified by Martin Cawley; Swords Business Park (O191472), 20 August 2012, ♀ with egg-sac collected from her web on thistle *Cirsium* on overgrown waste-ground.

This spider is very similar to the common and abundant *Enoplognatha ovata* (Clerck, 1757) and was distinguished from it only fairly recently. *E. latimana* was first collected in Ireland by Cawley in Counties Cork and Waterford also from rank vegetation on waste ground (Cawley, 2004). The species seems to occupy similar habitat but, as is the case in Britain, tends to be more common coastally. In Britain, it has a very scattered distribution through much of England with few records from the north and the bulk of the population in the south-east. *E. latimana* is

characterised as occupying the sunnier, drier and more open end of the spectrum of habitats utilised by *E. ovata*. It is found throughout western and southern Europe but is absent from a number of Baltic countries. The species is usually found on field layer vegetation in a range of open situations.

***Episinus maculipes* Cavanna, 1876**

DUBLIN: Strand Road (O195318), 24 August 2016, ♀ resting on a garden wall some 30cm from the ground on a coastal road.

This is the second Irish record of the species. The first specimen was found in a house in a very built-up area a little under 4km away (Nolan, 2012). This second record substantiates the contention then made that the species was probably established at the very least in other parts of Ireland's east coast. It is of interest that both specimens of *Episinus maculipes* occurred in urban situations and on man-made structures. The species seems to be spreading throughout Europe and has certainly spread significantly through Britain in recent years and the Irish occurrences are probably part of this expansion (Nolan, 2012).

***Simitidion simile* (C. L. Koch, 1836)**

LAOIS (NCR): Abbeyleix Bog S4482, 4 June 2013, ♂2♀♀ from rather dry straggling and woody *Calluna*.

OFFALY: All Saints' Bog SAC (N014111), 7 May 2008, ♂, ♀ submature, 2♂♂ presubmature from heathy vegetation within woodland; (N011111), 8 May 2008, ♂2♀♀ submature, ♂ presubmature from heathy vegetation within woodland, 25 September 2008, ♂ presubmature, 1 immature; (N011110), 12 June 2008, ♀ from *Calluna* dominated vegetation in open bog; (N019110), 23 August 2008, ♀, 1 immature from *Calluna* near margin with cutover bog; Ferbane Bog SAC (N107262), 6 May 2010, 1 juvenile, 3 June 2010 ♀ submature, 2 immature from wet central high bog; (N115258), 6 May 2010, ♂2♀♀ submature, 2 immature, 3 June 2010, ♂♀, ♂ submature from drained marginal high bog; Mongan Bog SAC (N034308), 30 April 2010, ♂, 28 May 2010 ♂ submature from wet central high bog; (N040306), 30 April 2010, ♀, 3♂♂7♀♀ submature, 1 immature, 28 May 2010, 2♂♂23♀♀, 3♂♂♀ submature, 3 immature from drained marginal high bog; Moyclare Bog SAC (N077241), 6 May 2010, ♂♀, 3 immature, 3 June 2010, 5♂♂4♀♀, ♀ submature from wet central high Bog; (N082245), 3 June 2010, ♀ from drained marginal high bog; Sharavogue Bog SAC (S049982), 7 May 2010, 1 immature from drained marginal high bog; (S051989), 4 June 2010, ♀ submature from drained marginal high bog.

All specimens were collected with a sweep-net. This species was for a long time considered doubtful for Ireland until it was confirmed here in 2004 when Cawley (2004) found a single

female specimen on *Ulex* on a coastal cliff in County Waterford. *Simitidion simile* clearly has a strong association with *Calluna* on heathlands and bogs in Ireland and additional records can almost certainly be expected from other counties. The species is associated primarily with southern heathlands in Britain and a range of other, dry and insolated habitats where it builds webs on woody field-layer vegetation. In Britain, it is most abundant in southern counties. *S. simile* occurs in a range of wet, dry and insolated habitats in Europe, being more abundant in the south and generally rather rare.

***Steatoda phalerata* (Panzer, 1801)**

synonym *Asagena phalerata* (Panzer, 1801)

CLARE (NCR): East Burren Complex SAC (M335030), 21-24 May 2006, pitfall traps (x10), emptied 11-14 June 2006, ♂ from calcareous grassland; 14 July 2006, ♀ collected by hand from within mosses covering semi-exposed rock. Traps were set by Eugenie Regan and Myles Nolan, and sorted by the former.

There is one previous Irish record from Murlough NNR in County Down (McFerran, 1997). This spider also eats ants and is widespread and scattered through Britain, occurring uncommonly in dry grassland, heathland and sand dune systems. *Steatoda phalerata* is widespread through Europe and is not considered uncommon, occurring generally in insolated habitats with thinly growing vegetation.

THOMISIDAE

***Ozyptila sanctuaria* (O. P.-Cambridge, 1871)**

DUBLIN (NCR): North Bull Island NNR (O249380), 4 June-3 July 2009, pitfall traps (x10), 2♀♀ and 2 immatures from fixed dune with slack elements.

This species is known from four other Irish counties. *Ozyptila sanctuaria* was first recorded from Tramore, County Waterford, in 1923 (Pack-Beresford, 1924) but not found again until 2001 when Cawley collected it in County Kilkenny (Cawley, 2001). This author collected it again in a quarry in County Cork (Cawley, 2004), on dunes in County Meath (Cawley, 2008) and in two of these three cases the specimens were sifted from mosses.

Most records are from the south-east of England in Britain but there are scattered coastal records from Wales. *Ozyptila sanctuaria* can be found in a range of habitats, occurring on low to tall vegetation and on more solid structures. The species is rarely found in Europe where it has a very limited distribution being largely confined to southern countries and absent from much of central, eastern and northern Europe.

Observations

A number of the species noted above are strongly thermophilous, preferring highly insolated or well-draining habitats. Their capture is a direct consequence of sampling in coastal dune-systems and sandy calcareous grasslands. Less obvious however is the sub-set of thermophile species that are so far known in Ireland only from raised bogs. The regular occurrence of *Hypsosinga albiovittata*, *Simitidion simile*, *Minicia marginella* and *Talavera aequipes* on midlands raised bogs suggests that they have retained a dry-loving element of their fauna while the hygrophilous fauna has undoubtedly been very adversely affected by drainage practices (Nolan, 2013).

The presence of two of the above named species at Girley Bog, which has experienced significant desiccation due to drainage, is thus perhaps not unexpected. The record of *Centromerus levitarsis* from Girley Bog however provides evidence that despite extensive drainage the bog has retained some significant components of an expected wetland fauna.

Other wetland species noted above, such as *Floronia bucculenta* and *Gongyliidium murcidum* are notable for the paucity of records in Ireland in spite of the availability of seemingly appropriate habitat.

Two species, *Mecopisthes peusi* and *Trichoncus saxicola*, taken with *Crustulina guttata* and *C. sticta* (Nolan, 2014) may be considered elements of a sub-set of species restricted to Ireland's east coast. Whether *Episinus maculipes* remains restricted also to this area remains to be seen, but the occurrence of another specimen substantiates the claim that the species is established here and the experience in Britain suggests that it will probably spread at very least through southern Ireland.

In the context of the revival of interest in spiders in Ireland over the last three decades, it is worth noting that of the 33 species reported above - fifteen were found for the first time in Ireland within the last twenty years.

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SOME NEW DISTRIBUTIONAL RECORDS FOR IRISH CADDISFLIES (TRICHOPTERA) INCLUDING A SPECIES LIST FOR LOUGH NEAGH

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Abstract

Recent research has extended the known distributions of several species of Irish caddisflies (Trichoptera) and these new records are reported.

Key words: Trichoptera, caddisflies, distribution, Ireland, Lough Neagh.

Introduction

O'Connor (2015) mapped the then known distribution of the Irish caddisflies (Trichoptera), data which are also now available on the National Biodiversity Data Centre's website (O'Connor, 2016). Since O'Connor (2015), further research in Ireland has recorded important extensions in the distributions of some species and these records are reported here. Through the kindness of Colin Plant, it has been possible to record several species new to Lough Neagh.

Lough Neagh is the largest fresh-water lake, by surface area, in the British Isles, measuring approximately 24km from north to south and 16km from east to west. The surface area is *circa* 383km². It is generally shallow, with a depth averaging 8·9m. The ph varies from 7·2-9·0 with an average of *circa* 8·2. Six main rivers (Ballinderry, Blackwater, Maine, Moyola, Six Mile Water and the Upper Bann) flow into the lough but the outflow is entirely through the Lower Bann River (Harron and Rushton, 1986). A list of the Trichoptera known from Lough Neagh and its nearby environs is provided (Appendix 1).

Four figure Irish grid references are given with each record. Important extensions in known ranges are shown on new revised longitude and latitude distribution maps prepared using DMAP. The more significant extensions are indicated by arrows. The adults were identified with Malicky (2004) and Barnard and Ross (2012), the larva of *Agraylea multipunctata* Curtis, 1834 with Wallace, Wallace and Philipson (2003) and Waringer and Graf (2011).

RHYACOPHILIDAE

***Rhyacophila munda* McLachlan, 1862 New to County Wexford (Fig. 1)**

WEXFORD: River Boro, Soldier's Hole, Borodale (S9636), ♂♀ 30 July 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

The River Boro flows eastwards from the Blackstairs Mountains for approximately 24km and

meets with the River Slaney some 3km south of Enniscorthy, County Wexford. At the Soldier's Hole, it passes through Borodale, the former ancestral home of Admiral David Beatty of the Battle of Jutland in 1916. Here, the river is fast flowing with small rapids under a bridge (Fig. 20). Three Heath portable light-traps were run along this stretch of river. Other notable captures at the site are given below.

***Agapetus fuscipes* Curtis, 1834 New to County Derry (Fig. 2)**

DERRY: White Rocks Bay (C8840), ♂ 22 June 2014, small waterfall cascading down to the beach, coll. and det. P. H. Langton.

HYDROPTILIDAE

***Agraylea multipunctata* Curtis, 1834 New to Counties Armagh and Cork (Fig. 3)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, 2♂♂ 3-30 August 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

CORK: Fota Island, Fota Golf Course (W7971), larva 30 August 2016, in pond, coll. D. A. Murray, det. JPOC.

***Agraylea sexmaculata* Curtis, 1834**

WATERFORD: Belle Lake (S6605), 5♂♂♀ 3 August 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

Belle Lake (Fig. 21) is one of the few substantial areas of fresh water in the south-east of Ireland and contains a high diversity of vegetation types (Heuff, 1984). Due to the kindness of the Belle Lake Trust, the authors ran three Heath portable light traps on the shore line at the obsolete water pumping station.

Larvae of *Agraylea sexmaculata* have been taken in several ponds in County Waterford but adults have only been taken once before in Ireland (in County Wexford). Due to a printing error in O'Connor (2015), June was omitted from the flight period for the species although it is given in the listed records. The known Irish flight period should now be amended to June, August (3-4 June, 3 August). Other notable captures at the site are given below.

***Hydroptila angulata* Mosely, 1922 New to County Derry (Fig. 4)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, 8♂♂ 3-30 August 2016, 4♂♂ 3 August-3 September 2016, Malaise traps, per C. W. Plant, det. JPOC.

DERRY: Lough Neagh (H9890), west of Toomebridge, 9♂♂♀ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

DUBLIN: River Liffey, Strawberry Beds (O0735), ♀ 1 July 2016, ♀ 25 August 2016, swept from vegetation on the river bank, coll. and det. JPOC.

Neboiss (1963) mentions a hydroptilid (“most probably *Hydroptila angulata*”) taken by John Curtis in Dublin on 6 August 1835. No other details are given but it is very likely that Curtis collected his specimen on the River Liffey at the Strawberry Beds. At that time, Dixon Hardy (1835) remarked “Of the various pleasant drives round the metropolis that through the Phoenix Park, by the side of the Liffey and the Strawberry Beds to Lucan...appears to be the most esteemed by the citizens” “The Strawberry Beds are much frequented by parties of pleasure at the season of the year when the fruit is ripe”. Elsewhere in County Dublin, the species is only recorded from the River Tolka.

***Hydroptila sparsa* Curtis, 1834 New to County Armagh**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, ♂ 3 August-3 September 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

***Hydroptila tineoides* Dalman, 1819 New to Counties Armagh and Derry (Fig. 5)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, ♂ 6 July - 28 August 2016, Malaise trap, per C. W. Plant, det. JPOC.

DERRY: Lough Neagh (H9890), west of Toomebridge, 6♂♂ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

***Ithytrichia lamellaris* Eaton, 1873 New to County Wexford (Fig. 6)**

WEXFORD: River Boro, Soldier's Hole, Borodale (S9636), 4♀♀ 30 July 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

PHILOPOTAMIDAE

***Wormaldia occipitalis* (Pictet, 1834)**

WEXFORD: Mill Stream, New Ross (S7328), 5♂♂ 2 August 2016, swept off vegetation beside a small trickle flowing into the stream, coll. JPOC/MAOC, det. JPOC.

Neu (2016) gives characters for the identification of seven European species of *Wormaldia*. Of particular importance is the separation of *Wormaldia subterranea* Radovanovic, 1932 from *W. occipitalis*. The former species has been taken out of synonymy with the latter. The specimens from New Ross are consistent with Neu's diagnosis of *W. occipitalis*.

***Wormaldia subnigra* McLachlan, 1865**

WEXFORD: J. F. Kennedy Park (S7219), ♀ 25 July 2016, swept from vegetation beside a fast flowing small stream, coll. JPOC, det. JPOC/MAOC.

The only other record from County Wexford is a male taken by J. J. F. X. King on the River Sow, Edenvale, in July 1902 (King and Halbert, 1910; O'Connor, 2015).

ECNOMIDAE

Ecnomus tenellus (Rambur, 1842) New to County Armagh

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, 5♂♂14♀♀ 3-30 August 2016, Malaise trap, per C. W. Plant, det. JPOC.

WATERFORD: Belle Lake (S6605), ♀ 3 August 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

This is only the second site for the species in County Waterford. It was previously reported from Ballyscanlan Lough (O'Connor, 2015).

POLYCENTROPODIDAE

Cyrnus insolutus McLachlan, 1878 (Fig. 7)

WATERFORD: Belle Lake (S6605), ♂ 3 August 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

This is only the second known Irish locality for this rare species. A full account of the find is given in O'Connor and O'Connor (2016).

Neureclipsis bimaculata (Linnaeus, 1758) New to County Derry (Fig. 8)

DERRY: Lough Neagh (H9890), west of Toomebridge, 2♀♀ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

The trap was located near where the Lower Bann flows out of Lough Neagh. Such an outlet is a common habitat for this species.

Plectrocnemia geniculata McLachlan, 1871

WEXFORD: J. F. Kennedy Park (S7319), ♂ 2 July 2016, swept from vegetation beside a small stream, coll. H. O'Connor, det. JPOC.

Previously only known from the county based on a larva taken in the Park in 1987 (O'Connor, 2015).

Polycentropus kingi McLachlan, 1881

WEXFORD: River Boro, Soldier's Hole, Borodale (S9636), 2♀♀ 30 July 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

This is only the second site for the species in south-east Ireland. It was previously reported from the Corock River, also in County Wexford (O'Connor, 2015).

PHRYGANEIDAE

Agrypnia varia (Fabricius, 1793) New to County Waterford (Fig. 9)

WATERFORD: Belle Lake (S6605), ♂♀ 3 August 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

Although *Agrypnia varia* is widely distributed in Ireland, this is the first record from the

south-east.

***Phryganea bipunctata* Retzius, 1783**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, 2♂♂3♀♀ 24 May - 30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

***Phryganea grandis* Linnaeus, 1758 New to County Armagh**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, 2♂♂ 3-30 August 2016, Malaise trap, per C. W. Plant, det. JPOC.

Previously reported from the lake in County Antrim (King and Halbert, 1910).

GOERIDAE

***Goera pilosa* (Fabricius, 1775) New to County Derry**

DERRY: Lough Neagh (H9890), west of Toomebridge, ♂ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

***Silo nigricornis* (Pictet, 1834)**

WEXFORD: Pollfur Bridge near Fethard (S7806), ♀ 29 July 2016, swept from the bank of the stream, coll. JPOC/MAOC, det. JPOC.

Previously only known in County Wexford from a ♂ pupa taken at the same site in 2014 (O'Connor, 2015).

LIMNEPHILIDAE

***Limnephilus affinis* Curtis, 1834 New to County Derry (Fig. 10)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, ♀ 3 August-3 September 2016, Malaise trap, per C. W. Plant, det. JPOC.

DERRY: Lough Neagh (H9890), west of Toomebridge, ♀ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

***Limnephilus auricula* Curtis, 1834 New to County Derry (Fig. 11)**

DERRY: Lough Neagh (H9890), west of Toomebridge, 6♂♂ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

***Limnephilus elegans* Curtis, 1834**

KERRY: Coad Bog, Castle Cove (V5860), adult 24 May 2016, coll. K. G. M. Bond, det. JPOC from a photograph of the specimen.

Coad Bog was donated to the Irish Peatland Conservation Council (IPCC) in 2015. It is a blanket bog, some 4ha in extent. Rainfall mixed with sea spray is the main source of water to the bog but pools and streams are present (Geraghty, O'Connell and Ó Corcora, 2016).

Limnephilus elegans is a local Irish species which has been badly affected by the destruction of peat lands (O'Connor, 2015).

***Micropterna sequax* McLachlan, 1875**

MEATH: Meadesbrook, Kilmoon, Ashbourne (O0295), ♀ 29 June 2016, at a lighted window, coll. D. A. Murray, det. JPOC.

This is only the third record from County Meath.

***Stenophylax permistus* McLachlan, 1895 New to County Waterford (Fig. 12)**

WATERFORD: Tramore (S5701), ♀ 17 September 2016 and ♂ 30 September 2016, MV Robinson light-trap, coll. T. Bryant, det. JPOC.

LEPTOCERIDAE

***Ceraclea albimacula* (Rambur, 1842) New to County Wexford (Fig. 13)**

WEXFORD: River Boro, Soldier's Hole, Borodale (S9636), 2♂♂3♀♀ 30 July 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

***Ceraclea annulicornis* (Stephens, 1836) New to County Galway (Fig. 14)**

GALWAY: Lough Corrib (M2241) ♂ 25 May 2016, swept on the shore, coll. and det. Martin Gammell, identification confirmed by JPOC from a photograph.

Ceraclea annulicornis is a local Irish species and there are few adult records. Until the present one, the most recent adult had been taken in 1973.

***Ceraclea dissimilis* (Stephens, 1836) New to Counties Armagh and Derry**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, ♂ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

DERRY: Lough Neagh (H9890), west of Toomebridge, 2♂♂2♀♀ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

***Ceraclea fulva* (Rambur, 1842) New to Counties Armagh, Derry and Waterford (Fig. 15)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, ♀ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

DERRY: Lough Neagh (H9890), west of Toomebridge, 2♀♀ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

WATERFORD: Belle Lake (S6605), 2♀♀ 3 August 2016, Heath portable light trap, coll. JPOC/MAOC, det. JPOC.

Although *Ceraclea fulva* is widely distributed in Ireland, this is the first record from the south-east.

***Ceraclea nigronervosa* (Retzius, 1783) New to County Armagh (Fig. 16)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, ♀ 24 May-30 June 2016,

Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

***Mystacides longicornis* (Linnaeus, 1758) New to Derry (Fig. 17)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, 2♂♂ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

DERRY: Lough Neagh (H9890), west of Toomebridge, 9♂♂ 24 May-30 June 2016, Malaise trap, per C. W. Plant, det. JPOC.

Surprisingly, this common Irish species is new to Lough Neagh.

***Oecetis lacustris* (Pictet, 1834) New to County Armagh (Fig. 18)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, ♂ 3-30 August 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

***Oecetis ochracea* (Curtis, 1825) (Fig. 19)**

ARMAGH: Lough Neagh (J0163), quay near Derrytrasna, Lurgan, ♂♀ 24 May-30 June and 13♂♂2♀♀ 3-30 August 2016, Malaise trap, per C. W. Plant, det. JPOC.

New to Lough Neagh.

Acknowledgements

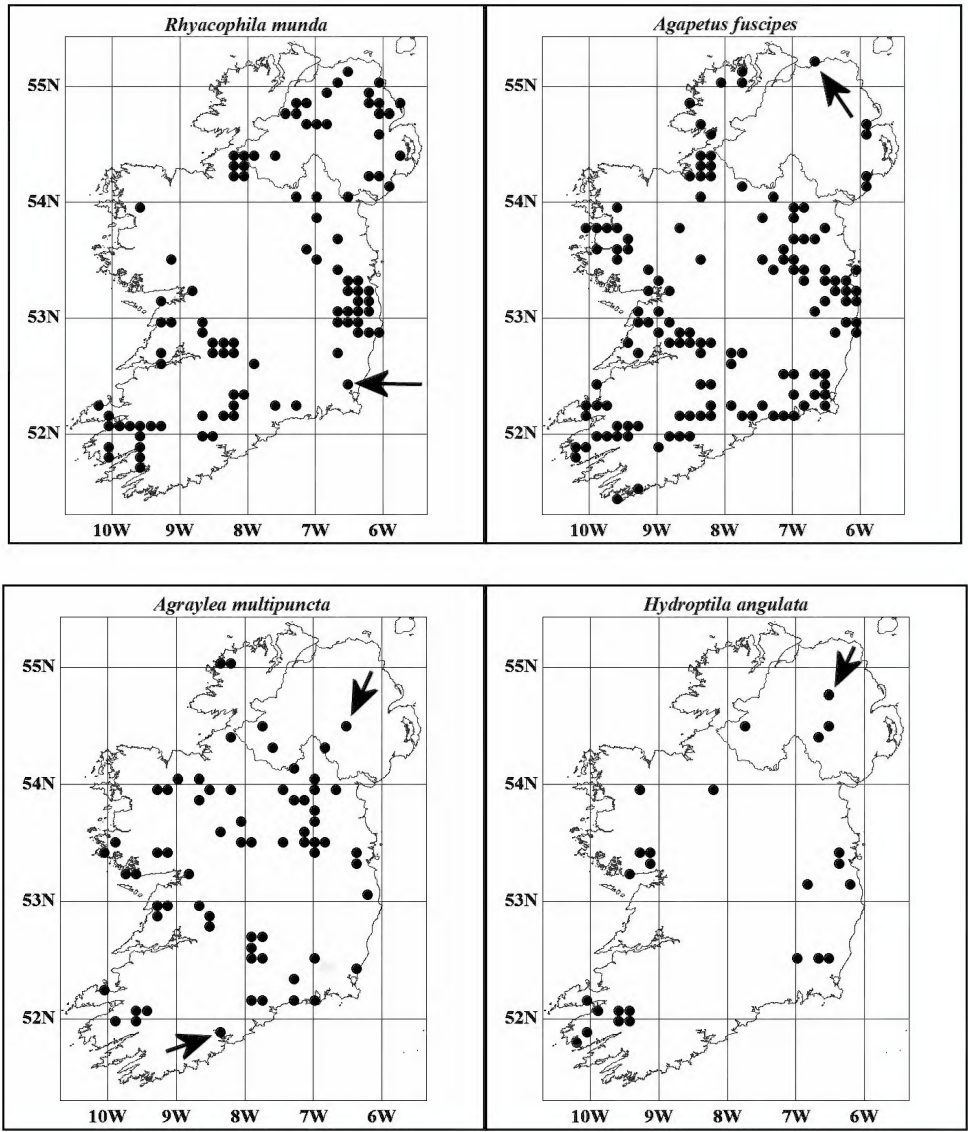
The authors are very grateful to Ken Bond, Tony Bryant, Martin Gammell, Peter Langton, Declan Murray and Colin Plant for providing specimens and/or records; Helen O'Connor for her help with field-work in the J. F. Kennedy Park; Alan Walshe and Nicky Walshe of the Belle Lake Trust for arranging access to the lake and for helping us during the light-trapping; Alan Morton for supplying the relevant software programme used for preparing the maps with DMAP.

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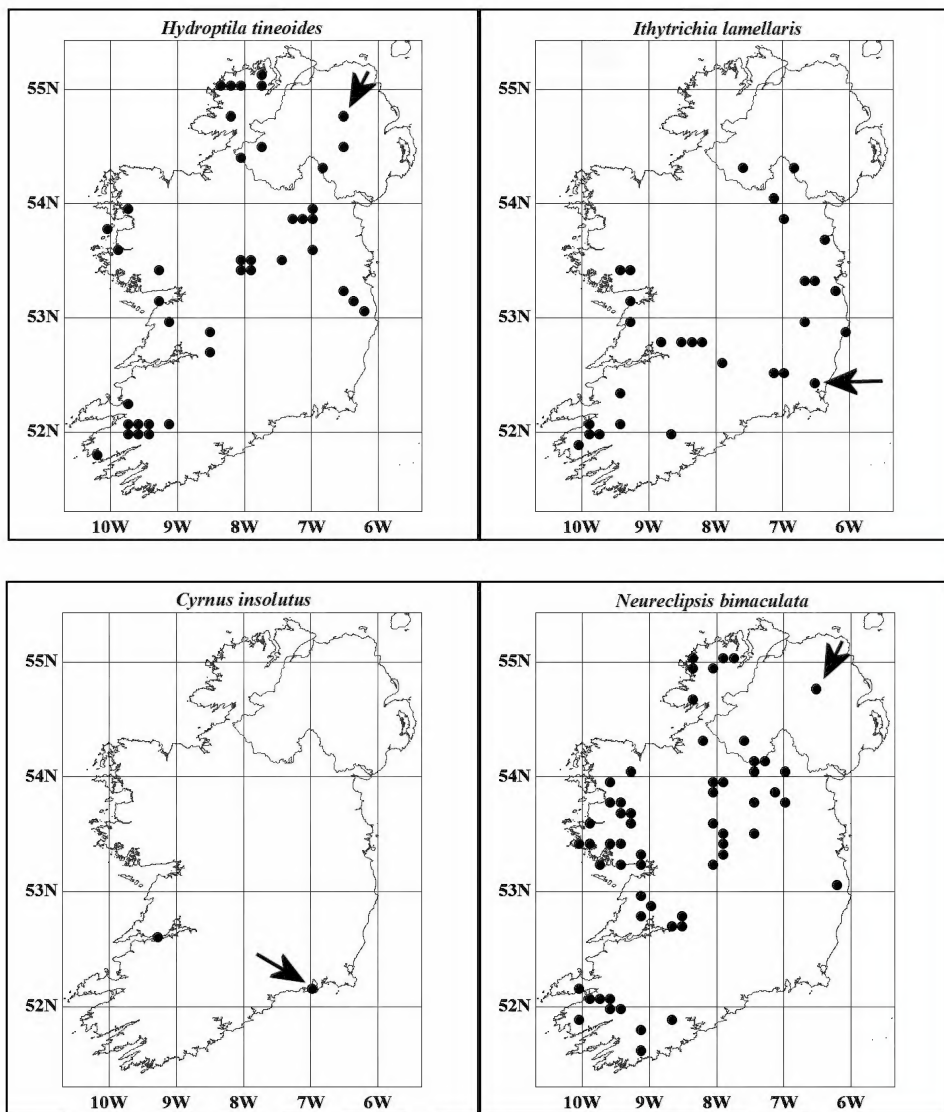
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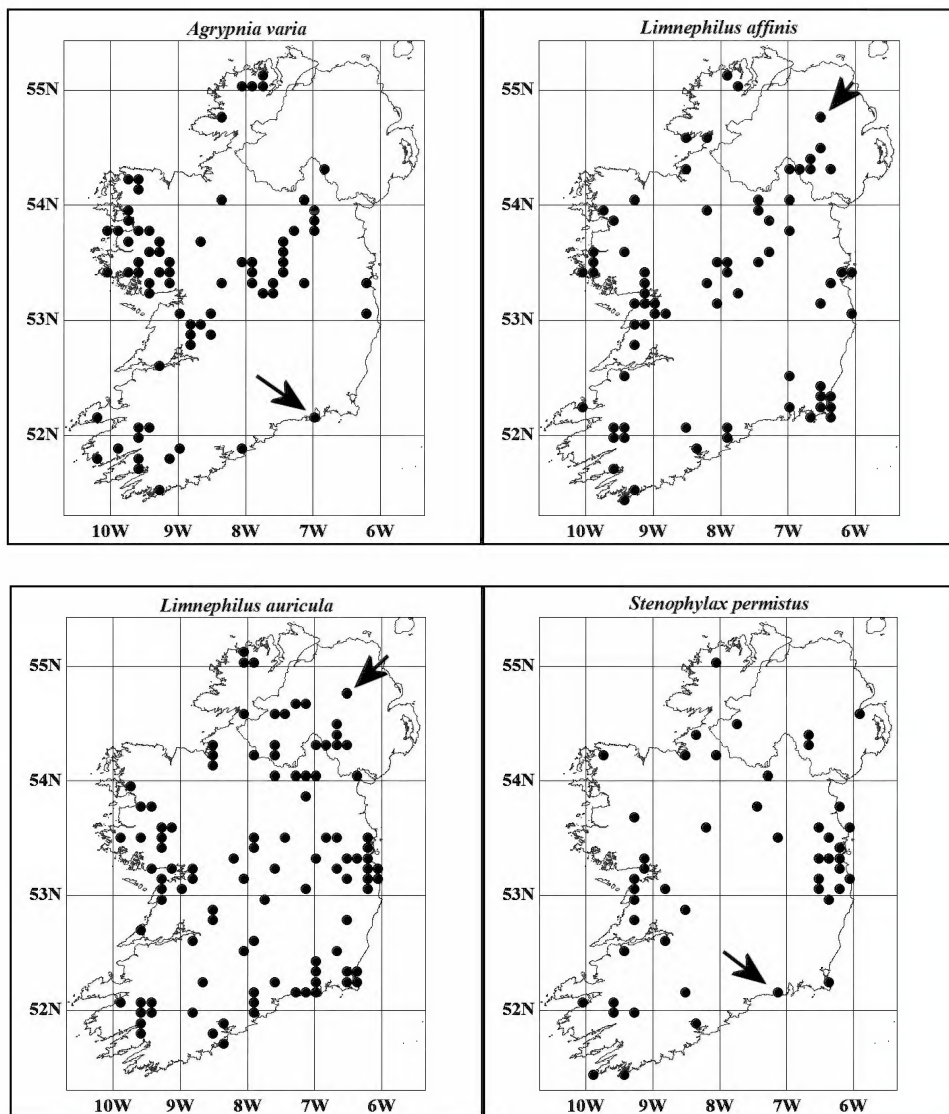
FIGURES 1-4. The known Irish distributions of *Rhyacophila munda* McLachlan, 1862; *Agapetus fuscipes* Curtis, 1834; *Agraylea multipunctata* Curtis, 1834 and *Hydroptila angulata* Mosely, 1922. Notable range extensions are indicated by arrows.



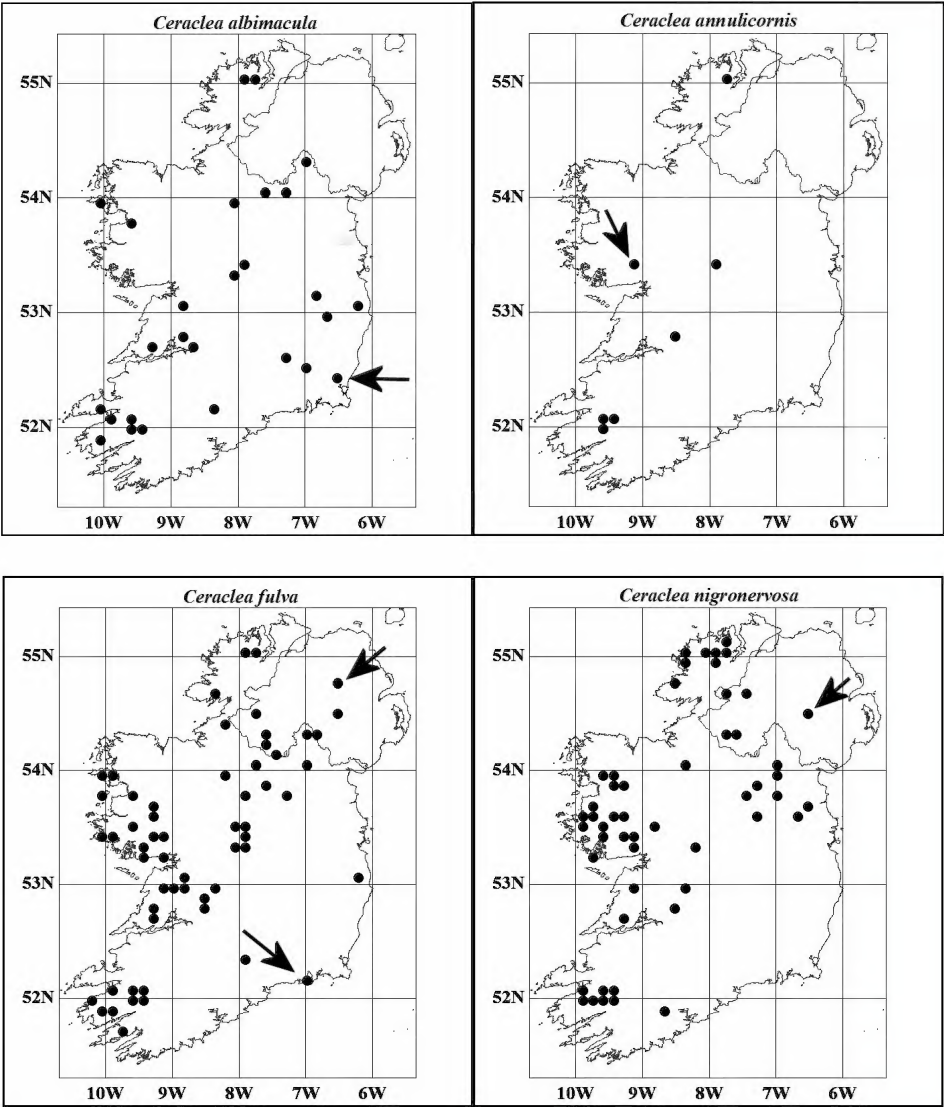
FIGURES 5-8. The known Irish distributions of *Hydroptila tineoides* Dalman, 1819; *Ithytrichia lamellaris* Eaton, 1873; *Cyrnus insolutus* McLachlan, 1878 and *Neureclipsis bimaculata* (Linnaeus, 1758). Notable range extensions are indicated by arrows.



FIGURES 9-12. The known Irish distributions of *Agrypnia varia* (Fabricius, 1793); *Limnephilus affinis* Curtis, 1834; *Limnephilus auricula* Curtis, 1834 and *Stenophylax permistus* McLachlan, 1895. Notable range extensions are indicated by arrows.



FIGURES 13-16. The known Irish distributions of *Ceraclea albimaculata* (Rambur, 1842); *Ceraclea annulicornis* (Stephens, 1836); *Ceraclea fulva* (Rambur, 1842) and *Ceraclea nigronevosa* (Retzius, 1783). Notable range extensions are indicated by arrows.



FIGURES 17-19. The known Irish distribution of *Mystacides longicornis* (Linnaeus, 1758); *Oecetis lacustris* (Pictet, 1834) and *Oecetis ochracea* (Curtis, 1825). Notable range extensions are indicated by arrows.

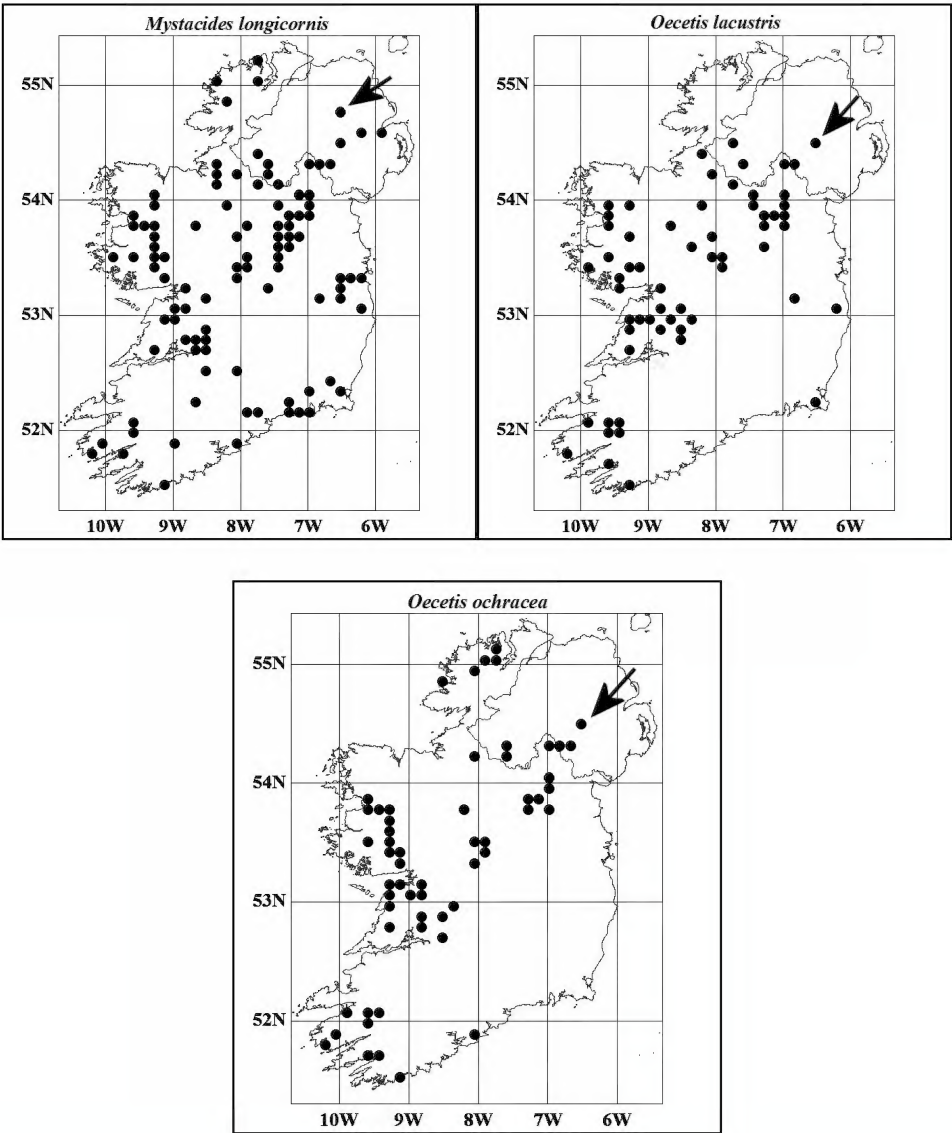


FIGURE 20. The River Boro at the Soldier's Hole, Borodale, County Wexford. Photograph
© Mary O'Connor.



FIGURE 21. Belle Lake, County Waterford. Photograph © Google.



APPENDIX 1. The known Trichoptera of Lough Neagh, Northern Ireland.

The previously unpublished records (new) are based on adult material collected in 2016, provided by C. W. Plant and identified by the senior author. * Indicates species associated with wetlands that diminish or dry out during the summer months including ditches, marshes and pools often created by flooding from the lake. The location of Lough Neagh and its surrounding counties are shown (Fig. 22).

GLOSSOSOMATIDAE

Agapetus ochripes Curtis, 1834

ANTRIM: (J1187) (King and Halbert, 1910).

HYDROPTILIDAE

Agraylea multipunctata Curtis, 1834

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

Hydroptila angulata Mosely, 1922

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: west of Toomebridge (H9890) (new).

Hydroptila sparsa Curtis, 1834

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

Hydroptila tineoides Dalman, 1819

DERRY: west of Toomebridge (H9890) (new).

ECNOMIDAE

Ecnomus tenellus (Rambur, 1842)

ANTRIM: (J0485) (Murphy and Carter, 1984).

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

POLYCENTROPODIDAE

Cyrnus trimaculatus (Curtis, 1834)

ARMAGH: Maghery (H8342) (King and Halbert, 1910); quay near Derrytrasna, Lurgan (J0163) (new).

Neureclipsis bimaculata (Linnaeus, 1758)

DERRY: west of Toomebridge (H9890) (new).

Polycentropus flavomaculatus (Pictet, 1834)

ANTRIM: (J1181), (J0485) (Murphy and Carter, 1984).

ARMAGH: Coney Island (H9364) (King and Halbert, 1910); quay near Derrytrasna, Lurgan

(J0163) (new).

DERRY: (H9485), (H9586) (Murphy and Carter, 1984); west of Toomebridge (H9890) (new).

PSYCHOMYIIDAE

***Psychomyia pusilla* (Fabricius, 1781)**

ANTRIM: (J1181), (J0485) (Murphy and Carter, 1984).

ARMAGH: Coney Island (H9364) (King and Halbert, 1910); quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: (H9485) (Murphy and Carter, 1984).

***Tinodes waeneri* (Linnaeus, 1758)**

ANTRIM: (J1181), (J0485) (Murphy and Carter, 1984); Rea's Wood (J1485) (O'Connor, 2015).

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: (H9586), (H9485) (Murphy and Carter, 1984); west of Toomebridge (H9890) (new).

PHRYGANEIDAE

***Phryganea bipunctata* Retzius, 1783**

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

***Phryganea grandis* Linnaeus, 1758**

ANTRIM: (J1187) (King and Halbert, 1910).

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

GOERIDAE

***Goera pilosa* (Fabricius, 1775)**

ARMAGH: Coney Island (H9364) (King and Halbert, 1910); quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: west of Toomebridge (H9890) (new).

LEPIDOSTOMATIDAE

***Lepidostoma hirtum* (Fabricius, 1775)**

ANTRIM: Shane's Castle (J1187) (King and Halbert, 1910).

LIMNAPHILDAE

***Anabolia nervosa* (Curtis, 1834)**

ARMAGH: Maghera (H9263) (King and Halbert, 1910).

***Glyphotaelius pellucidus* (Retzius, 1783)**

ANTRIM: Rea's Wood (J1485) (O'Connor, 2015).

***Limnephilus affinis* Curtis, 1834**

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: west of Toomebridge (H9890) (new).

Limnephilus auricula* Curtis, 1834

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: west of Toomebridge (H9890) (new).

***Limnephilus incisus* Curtis, 1834**

ANTRIM: Portmore near L. Neagh (J1169) (King and Halbert, 1910).

***Limnephilus lunatus* Curtis, 1834**

ANTRIM: (J1181), (J0485) (Murphy and Carter, 1984).

DERRY: (H9485) (Murphy and Carter, 1984).

Limnephilus sparsus* Curtis, 1834

ANTRIM: Rea's Wood (J1485) (O'Connor, 2015).

Micropterna lateralis* (Stephens, 1837)

ANTRIM: Rea's Wood (J1485) (O'Connor, 2015).

Micropterna sequax* McLachlan, 1875

ANTRIM: Rea's Wood (J1485) (O'Connor, 2015).

SERICOSTOMATIDAE

***Sericostoma personatum* (Spence, 1826)**

ANTRIM: (J1181), (J0485) (Murphy and Carter, 1984).

ARMAGH: Coney Island (H9364) (King and Halbert, 1910); quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: (H9485), (H9586) (Murphy and Carter, 1984).

LEPTOCERIDAE

***Athripsodes cinereus* (Curtis, 1834)**

ANTRIM: (J1181), (J0485) (Murphy and Carter, 1984).

ARMAGH: Coney Island (H9364) (O'Connor, 2015); quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: (H9485) (Murphy and Carter, 1984); west of Toomebridge (H9890) (new).

***Ceraclea dissimilis* (Stephens, 1836)**

ANTRIM: Rea's Wood (J1485) (O'Connor, 2015).

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: west of Toomebridge (H9890) (new).

Ceraclea fulva (Rambur, 1842)

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: west of Toomebridge (H9890) (new).

Ceraclea nigronevosa (Retzius, 1783)

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

Mystacides azurea (Linnaeus, 1761)

ANTRIM: (J0485) (Murphy and Carter, 1984).

ARMAGH: Coney Island (H9364), Maghera (H8342) (King and Halbert, 1910); quay near Derrytrasna, Lurgan (J0163) (new).

DERRY: west of Toomebridge (H9890) (new).

Mystacides longicornis (Linnaeus, 1758)

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

Oecetis lacustris (Pictet, 1834)

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

Oecetis ochracea (Curtis, 1825)

ARMAGH: quay near Derrytrasna, Lurgan (J0163) (new).

Triaenodes bicolor (Curtis, 1834)

ARMAGH: Coney Island (H9364) (King and Halbert, 1910).

FIGURE 22. The counties of Ireland. Lough Neagh is shown in black.



A CELEBRATION (1975-2016): *BULLETIN* NUMBER 40

J. P. O'Connor

The publication of *Bulletin Number 40* is a significant event for the Irish Biogeographical Society. As a celebration, the opportunity has been taken to publish some photographs of 1991 and 2016 Committee members. The Society's customary meeting place, Kennedys of Westland Row, Dublin City, is also shown. A selection of the Society's publications are currently on display in the snug there and these can be observed in some of the backgrounds. The photographs were supplied by Tom Bolger, Fiona Dolan, Declan Murray and Jim O'Connor. The sketch is reproduced with kind permission of Eileen O'Neill from her handmade book *A curious discovery* brought to our attention by Geraldine Breen (National Museum of Ireland).

Further reading

Ronayne, C. and O'Connor, J. P. (2008) A short history of the Irish Biogeographical Society.

Bulletin of the Irish Biogeographical Society **32**: 216-218.

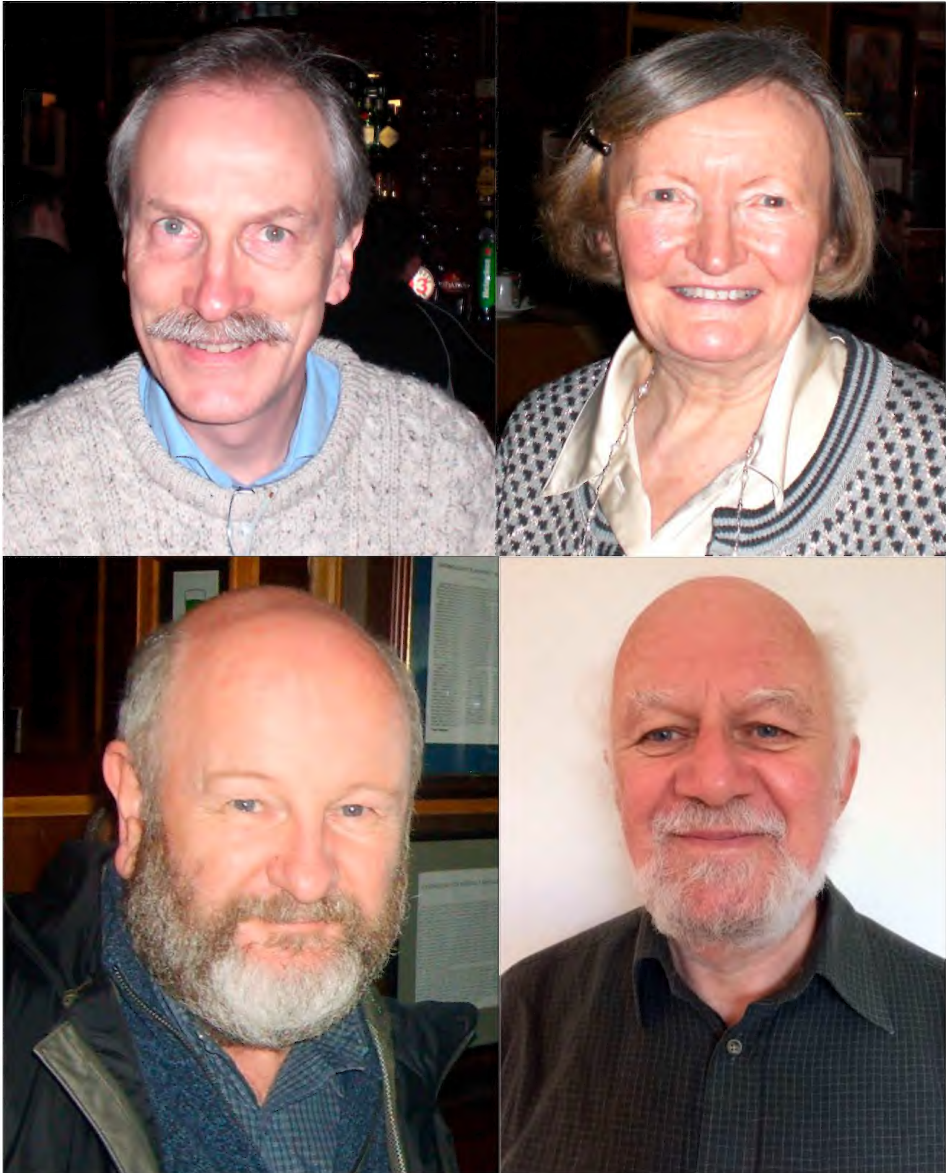
FIGURE 1. Kennedys of Westland Row, Dublin City.



FIGURE 2. A meeting of some of the 2016 Committee in the snug in Kennedys. From left to right: Jim O'Connor, Declan Murray, Paddy Ashe, John Walsh and Mark Holmes.



FIGURES 3-6. More members of the 2016 Committee. Top row - left to right: Jervis Good and Freddie Murray. Bottom row - left to right: Tom Bolger and Roddy Dolan.



FIGURES 7-9. A Committee meeting in January 1991 in Kennedys (before the snug was constructed). Those present : left to right - Mark Holmes, Jane Lynch, Jim O'Connor, Paddy Ashe, Tom Bolger and Mark Costello. Colin Byrne who took the large photograph is shown on the bottom left. An expressionist sketch of the snug by Eileen O'Neill is also shown.



NOTICE



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The *Irish Naturalists' Journal* commenced publication in 1925 as successor to the *Irish Naturalist*. Two issues a year include papers on all aspects of Irish natural history, including botany, ecology, geography, geology and zoology. The *Journal* also includes distribution records, principally for cetaceans, fish, insects and plants, together with short notes and book reviews. There is an Occasional Publications series for larger contributions on specific topics.

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